

COAL AGE

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C. E. LESHER, Editor

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The Strike Cloud's Silver Lining

OPERATORS of non-union mines have assured the government that in the event of a strike in the organized coal fields they will be able to attain an output of 6,000,000 tons per week. It is evident that such a rate of production would go far toward alleviating a shortage of coal during the time of year in which the strike may occur. Soft coal is now being produced at the rate of 7,500,000 tons per week, and 6,000,000 tons from the non-union mines would be 80 per cent of the amount the consumers are now demanding.

During the first week of the strike in November, 1919, when the union was much stronger than now, output was 29.6 per cent of the best previous record for four consecutive weeks, those ended with Oct. 25, 1919, when the daily average was slightly in excess of 2,000,000 tons. The second week of that strike recorded 33.3 per cent of that figure, the third week nearly 45 per cent and the fourth and sixth weeks 48 per cent, with the fifth week falling behind to 43.5 per cent. The daily average in the third, fourth and sixth weeks was better than 900,000 tons.

The combined output in 1918 of the non-union fields of Pennsylvania, West Virginia and Colorado, and all of eastern Kentucky, Virginia, Alabama, New Mexico, Utah, Washington and Tennessee was, in round numbers, 200,000,000 tons, or about 4,000,000 tons per week on the average, which was one-third the total for the country. That these fields were able to increase this figure by nearly 50 per cent during the strike of 1919 was due to the opportunity afforded for full operation by ample car supply. Every mine, save only those on the Louisville & Nashville R.R. in the Hazard field in eastern Kentucky, had all the cars every day that could be loaded. Within two weeks after that strike began the railroads in southern West Virginia were loading in excess of their best previous record, although the Kanawha and New River districts were closed.

The non-union operators will be able to repeat this performance, being strengthened in number now, if the railroads can do their part. This they should be able to do, for their lines will be freer of other traffic and the weather will be more favorable next spring than in November and December, 1919. One favorable condition existing then, unified control, is now absent, however.

The demand for coal, both soft and hard, normally is below the general average in April. As regards anthracite, a shutdown of the mines of not more than eight weeks would cause no hardship at such a time and the deficiency could largely be made up before severe weather the next winter. Of bituminous there will be large stocks in the hands of consumers by the end of March, and with a production reaching 6,000,000 tons, if not at the start, at least soon after a strike should be called, the country should have little difficulty in keeping

up normal operations and for a limited time would not suffer for lack of coal.

All of which is not argument for a strike but reason why one would be fraught with likelihood of failure.

The Bituminous Industry After April 1

IT IS as yet, of course, a matter of opinion as to whether agreement on a new wage scale at the coal mines can be reached without cessation of mining. That the country might have advance notice of the possibility of a coal strike, Secretary Hoover gave a statement to the press on Jan. 19 to the effect that the stage is all set for an industrial disturbance of the first magnitude. Those who heard Mr. Hoover make this statement did not get the impression that the government has abandoned hope of influencing a settlement without resort to industrial warfare, but he made it clear that no progress toward that end has been made as yet and that the line of approach has not even been indicated. Mr. Hoover has had several conferences with the president of the United Mine Workers and with a number of coal operators in recent weeks. He speaks as one who is well informed. He is not given to making off-hand statements.

Let us begin by getting right at the meat of the situation—the reasons why Mr. Hoover has come to the conclusion that the stage is now set for a strike. Conditions in the hard- and soft-coal industries are somewhat different, so we may consider bituminous coal first. The operators of the union mines are paying their men, both day and tonnage, the highest wages in the history of the business. The contract with the union under which these wages are being paid is the result of an award by a commission appointed by the President of the United States, following the strike of 1919, modified by the addition of \$1.50 per day to day men in the summer of 1920, on the demand of the laborers.

Labor represents 70 per cent of the cost of producing coal. When there is no demand for coal, the coal is left in the ground and the miner draws no pay. In 1921 there was demand from consumers both here and abroad for coal from the soft-coal mines of this country for 407,000,000 net tons, compared with a mine capacity estimated at 800,000,000 tons per year and more, and proven by several separate weeks' records to be in excess of 700,000,000 tons. With mines and miners ready and anxious to furnish two tons for every single ton for which there was a purchaser last year, there was sharp competition for business. The operators of non-union mines cut wages from the high peak to which they had been drawn by the union fields in 1920, and went after the business. The operators of union mines cut everything but wages, but they could not then and cannot now match coats with the fields where wages have been lowered.

Not only did the non-union operators and the non-

union miners get the business in 1921 and the profits as well, but the cream of the 1922 business is already being tied up by the non-union fields by contracts at figures the others cannot meet. In all of the great region east of the Rocky Mountains those soft-coal operators who are bound by contract with the United Mine Workers are facing an impossible and intolerable position. They cannot meet the spot market prices and live, and the contracts they obtained early in 1921 prior to the deflation of wages in unorganized fields are expiring and are not being renewed. The continuation of present wages or even of wages approximately as high, with attendant costs, means that union mines will in 1922 work but to supply that modicum of tonnage over and above the full-time output of the non-union mines necessary to meet the reduced requirements of the country.

At Shamokin, Pa., last week John Lewis told the assembled delegates from the anthracite mine workers that they did not propose to measure their wages by the yardstick of the non-union worker. The operators who employ Mr. Lewis' constituents must needs, however, measure their prices against the yardstick of price established by the wages he scorns. Had no anti-trust laws ever been enacted, no union of coal operators could ever withstand the onslaught of lower-priced coal in the present market. Nor can the United Mine Workers. Although there are degrees, varying in intensity from East to West, in the grief caused by the competition of non-union coal, no union field is free from its influence. The employers of organized coal-mine labor must and will have lower wages. No argument, no plea, no wage commission, can surmount this basic economic need. Against this is the determination of the miners' union to resist a wage reduction, and it is plain why Mr. Hoover concludes that the stage is set for a strike.

Those who have already raised the demand for government intervention—a federal mediation board or what not—have not reckoned on all the facts. There can be no setting up of standard wages that does not include the non-union fields. It would be of small avail for a federal agency to attempt to adjudicate the all too apparent differences between the union and the operators with any hope of permanent and satisfactory settlement without bringing non-union wage scales—already in danger of being forced too low—into focus. The non-union operators, having won the right to freedom from the miners' organization, will resist as strongly any attempt by the public to regulate the wage scales they pay as they have the efforts of the union in the same direction. To bring the unorganized districts into mediation with the remainder of the country would be tantamount under present conditions to fixing minimum wage scales. There are so many reasons why such a solution is not feasible that it need not be discussed.

When the coal market was in the hands of the seller, union labor set the pace for all. Now that the market is in the hands of the buyer, non-union labor sets the pace. The other must follow. Many operators hold to the opinion that because the chances of success in the soft-coal fields are so slim, the union will not call a strike—that the mine workers will not take the risk. Coal specialists in the government service are said to believe that neither the operators nor the union officials really have at this time a true measure of the temper of the mine workers. Since this is likely to constitute

an unknown quantity until the very eve of the expiration of the present agreement, they hold to the opinion that such an unknown quantity favors a peaceful settlement.

We anticipate for the bituminous industry a final settlement—however arrived at and when, by strike or otherwise—with union scales on a parity with the Washington agreement of 1917, the check-off eliminated, a number of changes in differentials (some important) and a contract for not to exceed one year. There is strong possibility also that several small groups will operate after April 1 without a contract.

Public Interest May Affect Anthracite Settlement

TURNING now to anthracite we find somewhat different conditions. The workers in the hard-coal region have already authorized their leaders to call a strike if no contract has been signed by the time the present one has terminated. These workers have enjoyed almost steady work at the highest wages ever received and are well fortified to resist a reduction. The pressure on the producers for lower selling prices on their product through lower wage costs is of different character from that affecting the soft-coal producers. There is no non-union anthracite to compete with that in Pennsylvania and bituminous coal at any price as a substitute is not an important factor as yet.

But the public, using hard coal in homes, knows prices are too high and, knowing, loudly calls for lower prices. These lower prices can come only through lower wage costs, hence there will be a demand that the hard-coal workers take a reduction in wages. The public will back the operators in this and will take an interest in the progress of negotiations to a greater extent than if only bituminous coal were involved. It is likely that, lacking a settlement prior to April 1, the chances for which do not appear any too favorable at this writing, public opinion will force intervention, either through a commission or by way of some agency set up by the passage of legislation of the Kenyon type. The bituminous coal operators and workers may be drawn in, even though their problem be of a different character.

SECOND THOUGHTS OFTIMES DISCLOSE that things are not as bad as they had seemed. A study of exports in the first nine months of 1921 made by the United States Chamber of Commerce discloses the fact that although in terms of dollars our export trade has shrunk in both warp and woof, when measured in quantity—that is, in tonnage—ten out of twenty of the principal commodities show gains over 1920 and fifteen of the twenty were greater this year than pre-war.

Wheat, of course, leads the list, with nearly sixfold gain in tons over pre-war and 82 per cent over 1920. Corn exports were nearly twice pre-war and more than eight times those of last year. Other food products to record increases were lard, oil cake, and meal and barley. Crude and fuel oils also gained.

Coal and coke and iron and steel products were the principal commodities to show decreases from 1920. In general it will be seen that raw material gained, but those products requiring coal for refinement or fabrication declined. Most unqualifiedly the prosperity of the coal industry is tied up with our foreign trade in products requiring coal for their output, as well as in coal itself.

Steeply Pitching Coal Bed with Limy Roof and Floor, Which Weather Badly, Mined by Retreating Longwall

Usual Chute-and-Pillar System Failed Because Floor Heaved—
Roads Driven in Floor of Mine—Ventilation Greatly Improved—
Stepped Longwall Introduced and Mining Costs Much Lowered

BY GEORGE WATKIN EVANS
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AT the Beaverhill coal mine a longwall system of mining has been introduced which is not essentially different from that commonly used except in the fact that it is applied to a pitching bed. The customary chute-and-pillar system signally failed to produce results.

The mine is located about twelve miles southwest of the city of Marshfield, in Coos County, Oregon, near the center of the lower half of a coal field somewhat oval in shape and covering an area of about 250 square miles. This coal field is approximately 180 miles in a direct line southwest of the city of Portland and borders on the Pacific Ocean at a point about 100 miles north of the California line. Beaverhill coal is well known to the older residents of San Francisco and in various places in Oregon, where it was quite popular prior to the time when Utah coals were first introduced into California and Oregon.

Mining men who conceived the original plan for opening and developing the No. 3 mine of the Beaverhill Coal Co. intended to drive the slope and all haulageways in advance and mine the coal by a sort of retreating system. In this respect their intentions were excellent, but they failed to take into account the character of the inclosing walls of the coal measure. Had the two walls of this coal bed been of a permanent and resistant character, the plan at first adopted would no doubt have achieved success.

WORKINGS LIE ON A DIP OF ABOUT 25 DEG.

Mine No. 3 has been opened on a coal bed about 6 ft. thick, which at the outcrop dips at an angle of approximately 40 deg. and at the bottom of the slope flattens to about 25 deg. In driving the main slope it was necessary to take into account the old workings of the No. 1 mine. Accordingly a single slope and return airway were driven on the bed until they reached a point about 100 ft. below the workings of No. 1 mine. Thence a slope and two return airways were driven for a distance of nearly 1,400 ft., at which point one slope and one return airway were continued to the bottom of the present main workings.

In all, the slope is about 3,000 ft. long and driven on the coal throughout this entire distance. Three gangways were driven on the north side of the slope and two on the south side, to the boundaries of the property. While driving these passages, in order to ventilate them, chutes were driven about every 200 ft., connecting the gangway with the one above so that it could be properly ventilated. Both gangways and chutes were driven in the coal in all cases.

This system no doubt would have proved satisfactory under almost any normal condition. Before the slope was finished, however, the bottom began to heave, and

it became necessary to lift it in order that the cars might reach the foot of the slope. No sooner had the gangways been driven to the boundaries than it became necessary to begin lifting bottom at various points throughout their length in order to let the cars travel through the haulageways. The same condition was found to exist in the chutes.

As a result of this continuous heaving, caused by an excessive amount of lime in the two walls of the coal bed for a distance of 15 to 20 ft. above and below the coal, it became necessary to employ most of the workmen in keeping the haulageways open, and only a few of them could be used in actual mining. In fact it is reported that at times it was next to impossible to produce enough coal to keep the boilers at the mine properly supplied with fuel. As a result of this excessive squeezing, the cost of mining was exceedingly high, even when the mine was fully developed, and an attempt was being made to mine coal by a retreating system. Prior to 1920 for a period of two or three years the cost of producing coal ranged from nearly \$6 to more than \$13 per ton.

LONGWALL SYSTEM NOW IN USE FOR TWO YEARS

Beginning with 1920 the system of mining was changed from a chute-and-pillar to a longwall system. A new hoist was installed and the preparation plant, which had become obsolete, was replaced with more modern equipment, including an Elmore jig. The slope was found to be in bad condition, and bottom had to be lifted for a considerable distance. The return airway was in even worse shape and some rock tunnelling had to be done to keep the mine properly ventilated.

The gangways driven in the coal had been placed near the top of the bed, and as a result it was necessary to shovel the coal into the cars after it had reached the bottom of the chutes. In order

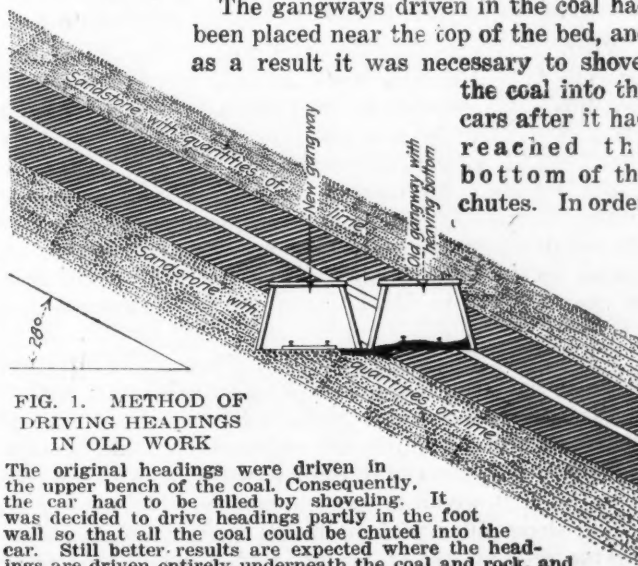


FIG. 1. METHOD OF DRIVING HEADINGS IN OLD WORK
The original headings were driven in the upper bench of the coal. Consequently, the car had to be filled by shoveling. It was decided to drive headings partly in the foot wall so that all the coal could be chuted into the car. Still better results are expected where the headings are driven entirely underneath the coal and rock, and rock chutes are established from the seam to the gangway.

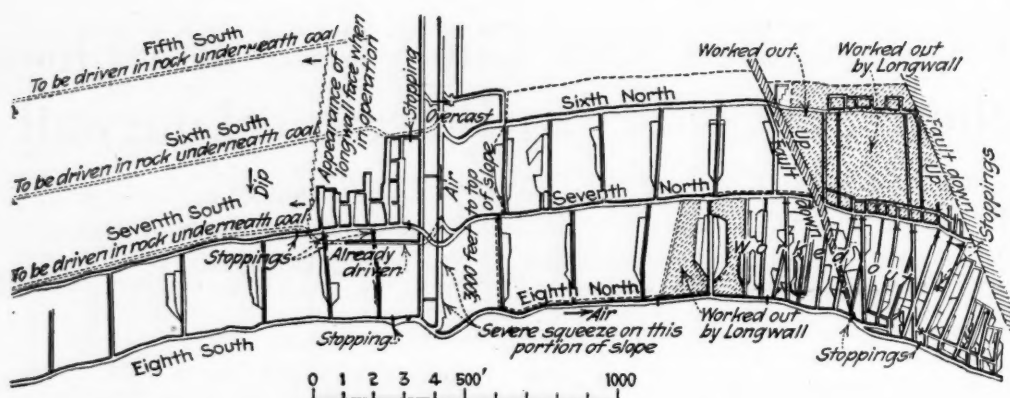


FIG. 2
Beaverhill Mine

That part of the plan that is in solid lines was driven before the mining system was changed from one having gangways partly in the head wall and chute-and-pillar workings to one having gangways partly or wholly in the foot wall and stepped longwall operation. The old workings are proving quite a handicap to cheap and efficient extraction.

to overcome this difficulty it was necessary for the new management to redrive the gangway in the rock below the coal, so that the bottom of the bed at the gangway would be above the top of the coal car. This work, of course, entailed the expenditure of much money. As previously indicated, the system of mining was changed to a modified longwall. By this means the working faces are carried horizontally toward the slope in steps about 25 ft. in length, each of which is 6 ft. in advance of the one immediately adjacent to it up the pitch. This arrangement is clearly shown in Fig. 3. A sheet-iron chute is carried as close to the face as practicable, so that the miners can load the coal into it. The longwall face is timbered by means of posts and caps on about 5-ft. centers.

In some instances collars also are used. In places where the roof threatens to break too close to the working face, cogs or cribs are used to take the squeeze. In this manner it is possible to cause the roof to break from 20 to 40 ft. in the rear of the working face. If, as sometimes happens, the span becomes too great, the roof is broken by placing a few shots in it. In most instances the bottom squeezes tight up against the roof within 20 to 30 ft. of the longwall face.

A parting of shale about 8 in. in thickness is found near the center of this coal bed. An effort is made to gob this under the present system of mining, which was not practicable with the chute-and-pillar system. Little powder is used under present conditions, advantage being taken of the squeeze to bring the coal down. As a result a large percentage of lump is produced.

LONGWALL HAS IMPROVED MINE VENTILATION

With the former system of mining it was almost impossible to ventilate the working faces properly, most of the difficulty arising from the fact that the chutes would close if the bottom was not properly and continuously lifted. This, of course, restricted the areas of the return airways. As may be seen in Fig. 3, with the present system of mining the full volume of air is conducted down the slope, then along the lower gangway, thence up the working faces of the longwall system, then to the return airway and back to the exhausting fan on the surface.

One of the difficulties—and it is rather a serious one—which has been inherited from the old system is that the longwall face is disturbed and comes to an abrupt end when the old chutes are encountered. This entails the expense of reopening the longwall face. If the coal were solid, it would be easy to continue the mining up to the slope pillar without break, thereby much reducing the present cost of mining. Under the old system of working, mine fires were frequent, and numerous stop-

pings are shown on the old mine map where large areas have been sealed off because of fires originating from spontaneous combustion. With the present system of longwall working, fires are reduced to a minimum, occurring only when one of the old chutes is encountered, this rendering it impossible completely to mine out the coal.

During the month of October the longwall system proved itself to be much more efficient in the event of a mine explosion than the old chute-and-pillar system. On Oct. 14 an explosion occurred in which fourteen men were burned and eight gassed. Two of these men were in a chute, twelve were on a longwall face and four were in the upper gangway. All eighteen, although

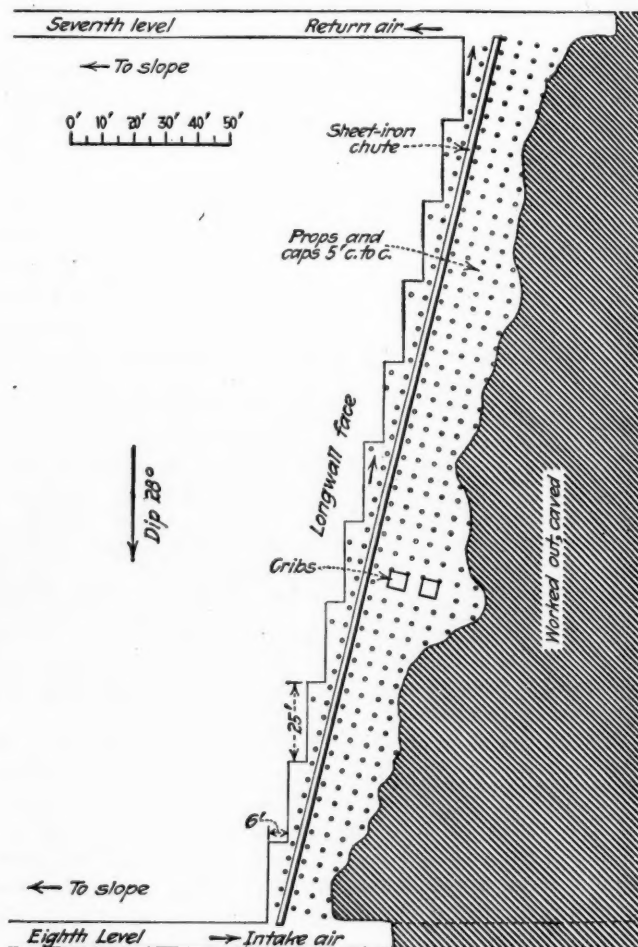


FIG. 3. PLAN OF LONGWALL FACE IN OPERATION

The steps are 25 ft. wide with 6-ft. offsets between them. Full advantage is taken of the 28-deg. fall which enables a sheet-iron chute about 300 ft. long to be used to deliver coal into the car. The grade makes it easy to convey the coal. The roof settles 30 or 40 ft. away from the longwall face.

some of them were severely burned and some were badly injured by falls of rock, were on the surface receiving first-aid treatment within 2 hours and 45 minutes from the time the superintendent was notified of the accident.

This contrasts markedly with an explosion that occurred when the old system was in use, wherein four men were burned and all four were dead before the rescuing party could reach them. With the longwall system of mining the rescuers followed the fresh air into the mine and were able to reach the men without the use of apparatus. The men working in the explosion zone were not overcome by afterdamp, because a full volume of fresh air was established immediately following the explosion.

It might be well to explain that the explosion in question resulted from the gross carelessness of one of the most experienced miners in the employ of the company. This man opened his safety lamp at the top of a chute which was filled with gas, and in attempting to relight it with a match started the fireworks. Fortunately a booster fan supplied him and a companion with sufficient fresh air so that they could reach the main haulageway, where they encountered the full volume of the ventilating current.

By referring to the illustrations accompanying this article the reader can readily visualize the system used. It will be noticed that a skip 6 ft. wide is driven up the full pitch of the coal bed. When this has been extended 25 ft. from the gangway, another skip, also 6 ft. in width, is started, and when these two have each advanced 25 ft. a third is started, and so on. In this manner the skips are driven up the pitch, each face being 25 ft. ahead of the one next down the dip. Fig. 3 clearly portrays this procedure, so that further description is unnecessary.

The Beaverhill mine is capable of producing about three times as much coal as the market at present will absorb. The demand, however, is abnormally low this season, because of the cheapness of wood in western Oregon. Even with the small production, the cost of mining has been reduced to about \$3.30 per ton. With production at capacity this figure doubtless could be lowered still further.

A thousand tons a day could be mined by this system, if the market warranted such an output. The production of the mine is limited, however, by the fact that only a single-track slope is available for coal withdrawal, and the heavy dip near its top limits the number of tons the hoisting engine can haul at one trip. These disadvantages, however, could be remedied if the market requirements demanded such improvements.

I have taken but a small part in bringing about the change in the mining system adopted at the Beaverhill mine. The bulk of the credit for transforming this operation from a non-producer to a producer, when the task seemed hopeless, belongs to J. J. Corey, superintendent of the mine, who has worked out the details on the ground. This experiment has proven conclusively that on pitching beds where the ground squeezes too badly to permit the use of the chute-and-pillar system, longwall can in many instances be employed to advantage.

If I were called upon to open a property of this nature from the outcrop, and were satisfied that a definite market existed for the product of the mine up to an appreciable tonnage per day, I would not hesitate to drive the slope in the solid rock at a distance of 8 or 10 ft. below the troublesome ground, then drive the gangways

through the rock at a reasonable distance from the coal and connect them at intervals of about 50 ft. with the longwall face by means of rock chutes. The first cost of driving a slope would be greater than if it were driven on the coal. The same is true of the rock gangways, but the upkeep would be small compared with the expense to which the company above mentioned has been put in trying to keep the Beaverhill slope and gangways open. Furthermore there would be no limit to the speed with which cars could be hauled along the gangways or the slope so far as the tracks were concerned, because they could be properly aligned and ballasted and kept in good condition without much trouble.

Either an Oversize or a Ventilated Motor Needed for Steady Locomotive Operation

BY W. A. CLARK*
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UNTIL recently all motors intended for use on mine locomotives were totally enclosed and the case made as nearly dustproof as possible, the idea being to protect the commutator, brushes and windings from coal dust. It was thought that such dust had a tendency to cause short-circuits and grounds that would shorten the life of the commutator.

The motors selected for use upon any given weight of locomotive are given normally a one-hour rating greater than that required at 25-per cent track adhesion. This insures their having a short-time capacity sufficient to accelerate any load within the slipping point of the drivers. The amount of work that a locomotive is capable of doing in a day depends, however, on the continuous capacity of its motors and not on their rating for one hour. The one-hour rating of the motor is measured with the covers off the locomotive, and in accordance with the other standardization rules of the American Institute of Electrical Engineers. It depends principally on

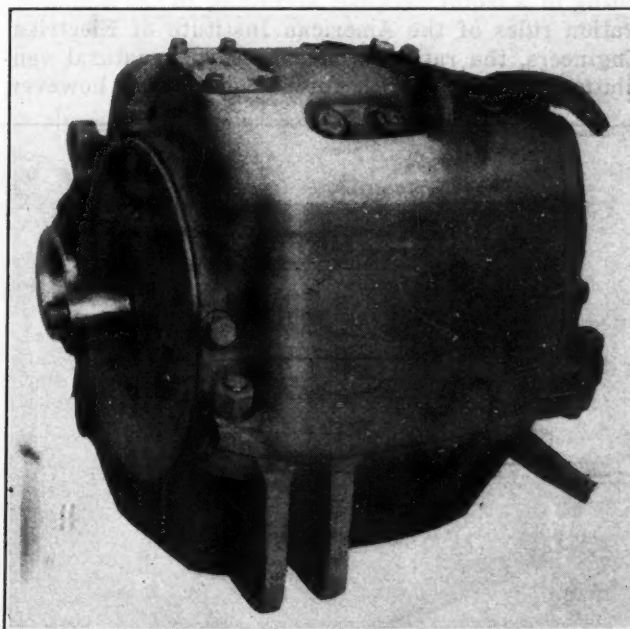


FIG. 1. AN INTERNALLY VENTILATED MOTOR

Such a motor should be so enclosed that the air will be compelled to follow a certain direction. To blow air on a motor without such a precaution in a degree would be as foolish as to blow air in a mine without air courses specifically provided.

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thermal capacity (or mass) and to a slight extent on radiation and ventilation.

Continuous motor capacity, on the other hand, is measured with covers arranged as in service. This means that with a totally enclosed motor there is little ventilation, and the rating will depend largely upon the area of the radiating surface. The ratio of continuous rated amperage to the one-hour rated amperage, which usually is 25 to 50 per cent, will depend on the ratio of the total radiating surface to the mass, being a larger ratio on the smaller machines, as the larger the motor the smaller is the surface in proportion to the volume or mass.

Gathering locomotives usually are supplied with small motors. When gathering cars, the locomotive for a large part of the time is standing, running light or hauling only one or two cars, so that the average current consumption is relatively low. As a result a motor applied to a locomotive on the basis of the hour rating usually has sufficient capacity to perform the required service. In haulage work, on the other hand, where the hauls are long with grades against the loads, it may be necessary either to use a larger motor than the weight of the locomotive would demand, in order to assure sufficient continuous capacity, or else to find some way of increasing this capacity.

FAN WILL INCREASE CONTINUOUS CAPACITY

One way to increase the continuous capacity of a motor is to apply forced ventilation. This is accomplished on a mine locomotive by mounting a motor-driven blower on the machine and piping the air to one—usually the pinion—end of each motor, and arranging an air outlet on the opposite end. The air in passing through the motor absorbs and carries away much of the heat of the armature and field coils. This raises the continuous capacity to from 70 to 80 per cent of the hour rating.

Forced ventilation does not increase the one-hour rating of a motor because, according to the standardization rules of the American Institute of Electrical Engineers, the rating is measured with natural ventilation. A motor with forced ventilation, however,



FIG. 3. SELF-VENTILATED MOTOR DISASSEMBLED
The openings in the end plates and the baffles which direct the air may be seen in the illustration.

is equivalent in service to an inclosed machine of approximately double its rated horsepower. It has been found in operation that air carries away as much coal dust from the motor as it carries into it and that a machine that is operated with forced ventilation usually is cleaner inside than is one that is totally inclosed. Fig. 2 shows a blower with its motor and piping installed on a locomotive.

Another way to increase the continuous capacity of a motor is to arrange it for self-ventilation. The Westinghouse Electric & Manufacturing Co. has adopted this idea on one of its motors. This machine was designed with longitudinal ducts through the armature and a fan on its pinion end. Operated inclosed this fan circulates air through the motor, drawing it in through the commutator and core and returning it through the field to the point whence it came.

This efficient internal ventilation gives a continuous capacity in amperes of more than 40 per cent of the hour rating. By substituting ventilated for inclosed housings, the continuous capacity is increased 20 per cent. These ventilated housings are provided with baffle plates that so direct the air that it enters through the openings at the commutator end, passes under the commutator through the core and fan and out through the housing on the pinion end. The air does not touch any of the live parts such as brushes, commutator or windings. Figs. 1 and 3 show this motor both assembled and taken apart. The openings

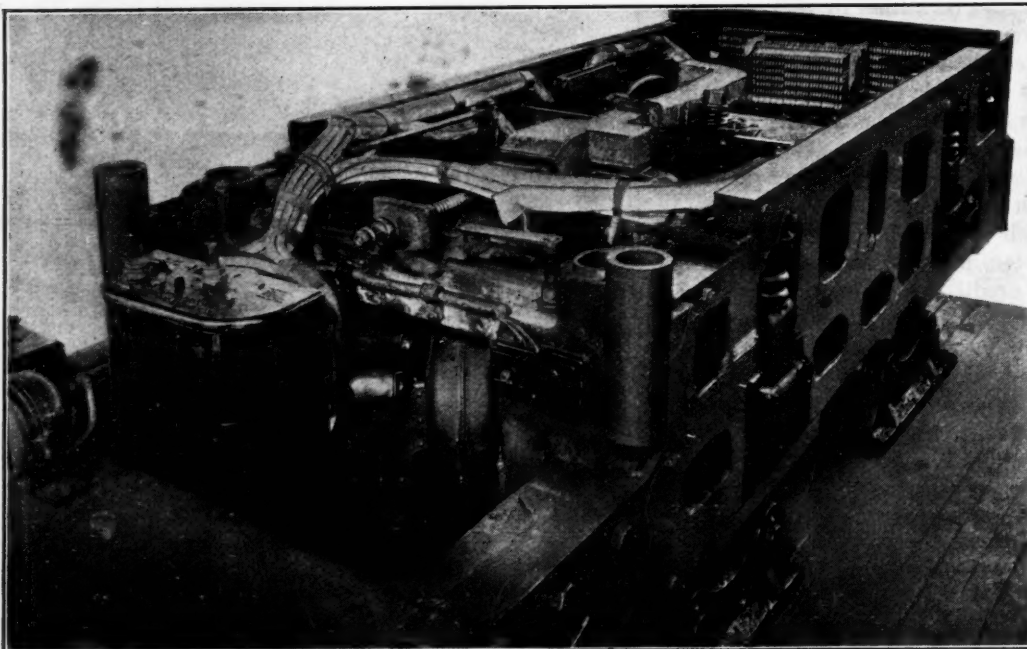


FIG. 2.
Locomotive
with Covers
Removed

Shows near controller the motor for driving the fan, the air duct bringing air to the fan eye, the fan itself, and on the top of the locomotive the rectangular ducts by which air is conducted to the motors. Ventilation does not increase the motor's rating, which is based on its capacity with natural ventilation, but it does raise immensely its real ability to run continuously at high duty.

in, and the baffle plates upon, the housings can be seen in this latter figure.

In order to test the efficiency of this equipment, two locomotives were put in service in the same mine at the same time, one fitted with motors with ventilated housings and the other equipped with motors totally inclosed. After several years of service the motors with ventilated housings were cleaner and their commutators were in better shape than those of the inclosed motors.

Where the service is particularly severe, forced ventilation can readily be applied to a motor of this type. As the blower will be assisted by the fan on the pinion end of the armature, the combined ventilation will be highly effective. In such a case an inclosed housing is used on the commutator end and a ventilated housing is installed on the pinion end. The air entering at the pinion end passes through the field coils and over the armature surface to the commutator end, thence through the commutator and armature core to find its way out at the pinion-end housing.

Nova Scotia Plan for Operating Weigh Pan

By JOHN S. WATTS

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A WEIGH pan dumped by the weigh boss, through the medium of an electric magnet, which controls a brake wheel is described on page 617, of COAL AGE, of April 7, 1921. In my opinion the arrangement used in this district for this purpose is a more efficient one, and less likely to get out of order.

The general idea of the mechanism is shown in the accompanying drawing. It consists of an air cylinder of the required diameter and stroke which, when compressed air is admitted on top of the piston, will pull

down the lever and open the gate on the weigh pan. The gate is closed when the air pressure is released, by the counterweight shown.

The cylinder is absolutely plain, being merely a cast-iron pipe bored out and fitted with a blank flange at the lower end, and a cover with a gland for the piston rod on the top end. At the top is a hole drilled and tapped for a $\frac{3}{4}$ -in. air pipe, and a small hole is drilled in the bottom for permitting the air to escape from under the piston as it comes down.

WEIGHMAN AT DESK PUTS DUMP IN OPERATION

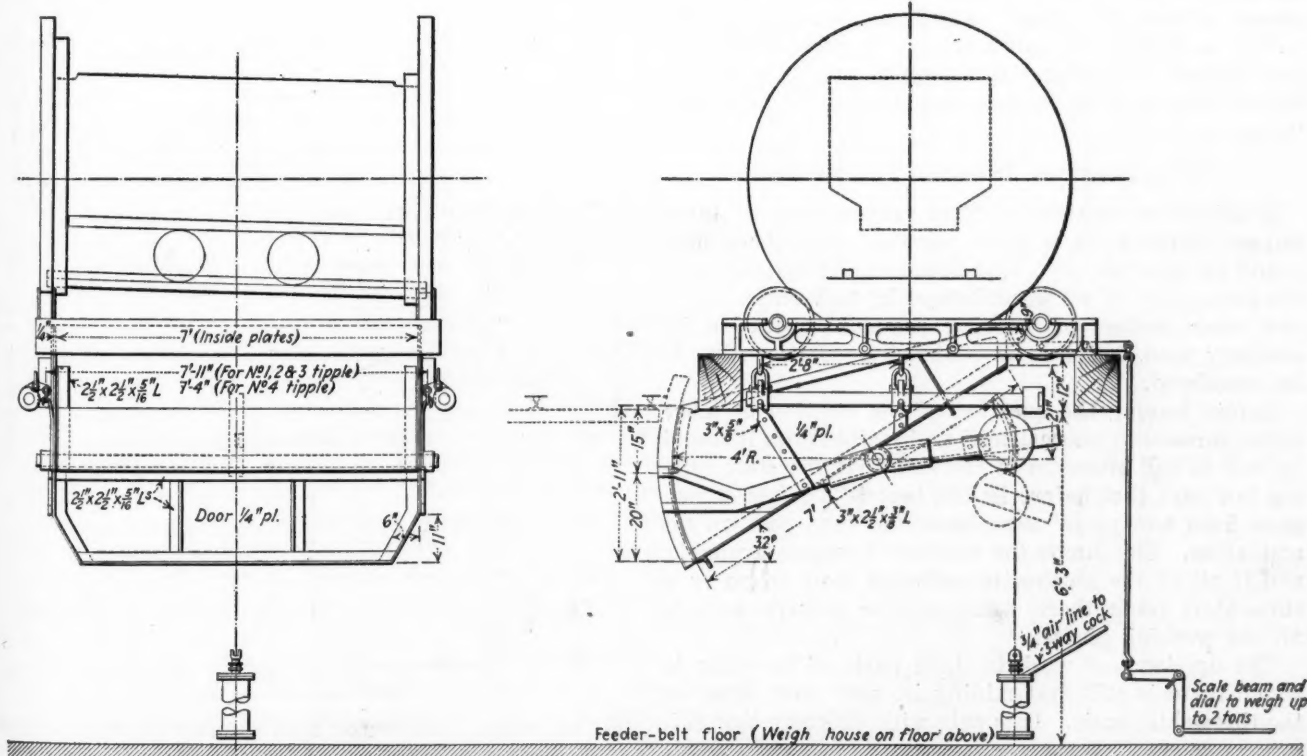
The air pipe is carried to a point convenient to the weighman's desk, and is there fitted with a three-way cock, which when set one way will admit air to the air cylinder; and so operate the weigh-pan gate, and when the cock is reversed will allow the air to escape and so permit the balance weight to close the gate.

The piston usually is fitted with a cup leather, to make it airtight, but some prefer a plain solid piston, which will stay airtight for a long time if at the beginning it is made to fit in the cylinder closely.

This arrangement can be adapted to suit all types of weigh pans, is quite simple to apply, and can be depended on to perform its functions under the most severe treatment. I have seen one operating successfully when buried in a pile of coal, the only part visible being the rope leading to the lever on the weigh pan.

I consider this apparatus more serviceable than the electromagnetic type, as it is more simple, has nothing to get out of order, can be made and installed by any mechanic, and requires scarcely any attention. It is just as adaptable as the electric mechanism and can be operated from any reasonable distance, just as readily.*

*The writer does not say what is to be done when compressed air is not available, nor does he refer to the difficulties with compressed air during cold weather.—EDITOR.



WEIGH PAN WHICH A WEIGH BOSS CAN READILY DUMP FROM HIS DESK BY MEANS OF AN AIR CYLINDER

An air cylinder of the required diameter and stroke, the piston of which is lowered when air is admitted, furnishes the means for putting down the lever and opening the gate of the weigh pan

Can Anthracite Mines and Preparators Be Operated with Advantage on More Than One Shift Per Day?—I*

Multiple Shifting in Mines Would Make Necessary Relays of Men in Each Working Place or Working Mines in Sections and in Mines and Breakers Would Increase Number of Men Required to Produce a Given Tonnage

BY DEVER C. ASHMEAD†
Kingston, Pa.

METAL-MINE engineers have frequently wondered why anthracite mines and their preparators are rarely operated on double or triple shifts. One of the reasons is that the adoption of any such plan would bring about difficulties with the colliery employees, for they have never worked on that plan and would show their resentment by suspending work. Even if they could be induced to take part in maintaining this full schedule they would not be as efficient as at present, for they would be working more or less unwillingly at hours during which they are accustomed to rest.

Operation on a three-shift basis would necessitate the triple manning of each working place, and dissensions would arise between the men, for each shift would assert that the men on the preceding shift had taken undue advantage of them and had not left conditions as favorable as they had found them on commencing work.

To obviate these disputes it might be necessary to let out the work to a contractor who would hire his own helpers to mine out the chamber, or breast. The state mining law requires that a miner be put in charge of each working place. To conform with this provision in the law he would have to hire three helpers and two miners to work the breast. The labor unions have been trying to abolish the subcontractor in mine work, and any method of working that would cause his return, however innocent in purpose, would result in labor disturbances.

TRIPLE SHIFTING INVOLVES PARTNERSHIP

It might be possible to form partnerships of three miners working in a place together, but these men would be quite likely to have frequent dissensions as to the proportion of work performed by each shift. Only one other method of working remains—operation by company men, but this is ordinarily too expensive to be considered.

Before leaving the question of the relation of labor to the three-shift operation of anthracite mines it would be well to call attention to the fact that the state mining law says that before he can become a miner a man shall have two years' experience and then pass an examination. This limits the number of miners available, and if all of the anthracite collieries were to go on a three-shift basis there would not be enough men to fill the working places.

The development work in those parts of the mine in which there is still first mining is, even now, often on the three-shift basis. It is only with difficulty that this

development work is kept sufficiently far in advance of the coal-mining forces to keep them supplied with working faces and with production on all three shifts there would be no way in which the development could be maintained.

Second mining would seem, however, free from this drawback, but experience shows that it is difficult to maintain the output from those mines or portions of mines where production is from second mining, because it is frequently necessary to reopen closed places, to re-lay tracks, clean falls, and in places to penetrate squeezed areas, and because time must be allowed at frequent intervals for the settlement of disturbed measures so as to minimize the dangers to those who are working at the face and because special conditions, such as overlying workings or the necessity for partial or complete support of the surface and surface buildings, often limit the location and extent of second-mining areas.

If it were possible to divide the miners into three shifts and work three parts of the mine integrally, one in each shift, the objection that contract work

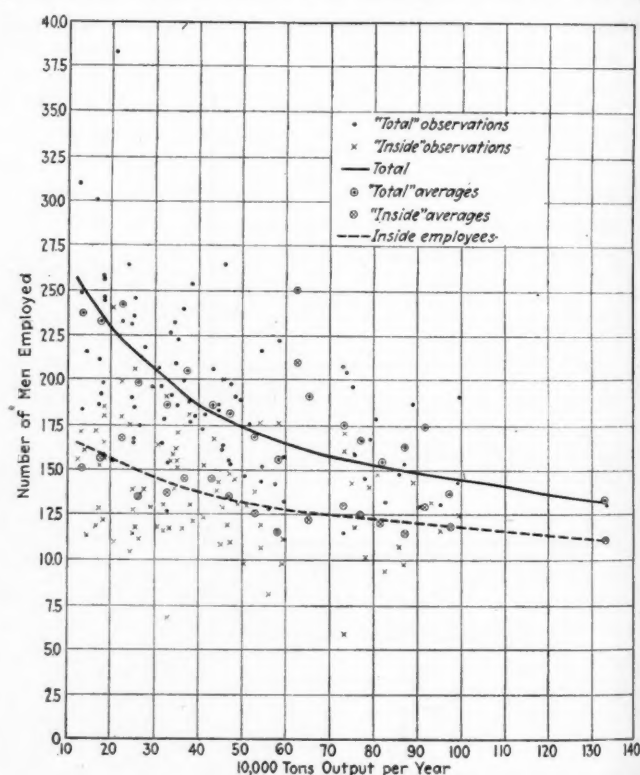


FIG. 1A. TOTAL AND INSIDE MEN EMPLOYED TO PRODUCE A GIVEN ANNUAL TONNAGE

In reading the number of men employed it should be understood that the number of men recorded is the number per 10,000 tons of output per year and not the gross number. Thus where 900,000 tons per year are produced the force of inside men is 90×12.1 or 1,089 men.

*Article entitled "Can Anthracite Mines Be Operated Profitably on More than One Shift?" to be read at the February meeting of the American Institute of Mining and Metallurgical Engineers, New York City.

†Anthracite Editor, COAL AGE.

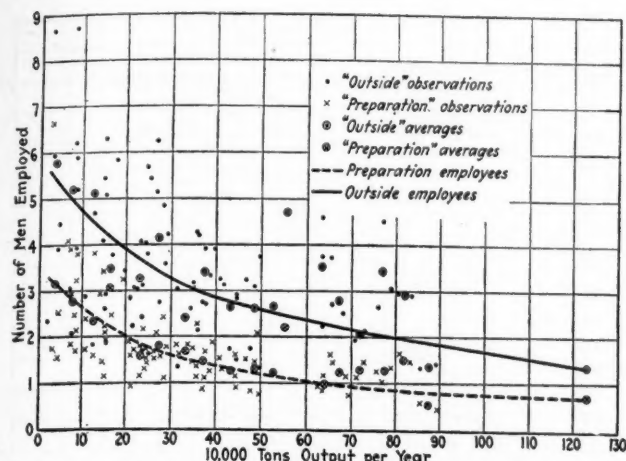


FIG. 1B. OUTSIDE AND PREPARATOR MEN EMPLOYED TO HANDLE A GIVEN ANNUAL TONNAGE

Here again the number of men is based on the tons of output per year in ten-thousands of tons. A preparator with an output of 50,000 tons a year will require three men per 10,000 tons, whereas one with an output of 1,000,000 tons a year will manage to get along with about 0.8 of a man per 10,000 tons.

would be necessary would be removed, for with this arrangement every miner would still have his own place. But it would not be possible to get the efficiency now obtained, for two-thirds of the men would be working on off-shifts and their willingness to work would be decreased.

But, overlooking all this and assuming boldly that it is possible and might be desirable to divide the miners among the morning, afternoon and night shifts, there would not be enough company men to go around. After all is said the miners and their helpers constitute only 30 to 40 per cent of the men employed and the others make up the remaining 60 to 70 per cent. The difficulty would therefore be in making this force of men handle the duties of all three shifts. In order to deal intelligently with this subject it will be necessary to make a careful analysis of the various types of underground workers at collieries.

DEVELOPMENT NOW AT MAXIMUM CAPACITY

In this inquiry the men at work at development may as well be omitted, for their number can hardly be increased, as even at present the advance work is often conducted during three shifts of each day. So, omitting development men, who are included among the miners and their helpers, the number of underground workmen at four different collieries is as shown in Table I.

With the introduction of the triple shift no increase would have to be made in the number of pumpmen. This, however, is a small item, as Mine No. 1 has only two men, Mine No. 2 only four men, Mine No. 3 only eight men and Mine No. 4 only seven thus engaged.

Another class of men that would be but little affected if the mines were worked in sections comprises the foremen and their assistants. Where there is but one opening the number of foremen, of course, would have to be increased, as there would have to be one man in charge of each shift, but where there is more than one opening a foreman usually has been already assigned to each.

Consequently, if each opening or some combination of them were put on different shifts the number of foremen would not be increased. This is clear from Table I, for there is a foreman in charge of each opening. Ordinarily, however, with three shifts a somewhat greater number of foremen would have to be engaged.

TABLE I.—UNDERGROUND FORCE AT FOUR ANTHRACITE COLLIERIES

	Mine No. 1			Mine No. 2			Mine No. 3			Mine No. 4		
	Opening No. 1	Opening No. 2	Total	Opening No. 1	Opening No. 2	Total	Opening No. 1	Opening No. 2	Opening No. 3	Total	Total	Total
Cutting and loading												
Contract miners.....	106	133	239	147	54	89	60	203	321			
Contract laborers.....	5	3	8	27	15	12	8	35	194			
Company miners.....	11	22	33	3	3	3	3	3	3			
Company laborers.....	12	10	22	3	3	3	3	3	3			
Total cutting and loading.....	134	168	302	174	75	101	68	244	557			
Ventilation												
Door tenders.....	2	5	7	11	7	4	5	16	9			
Bratticemen.....	1	5	6	5	3	2	2	4	7			
Masons.....	1	1	2	3	2	2	2	4	7			
Safety-lamp men.....	1	1	2	3	2	2	2	4	7			
Total ventilation.....	3	11	14	19	12	6	9	27	18			
Transportation												
Stationary engineer.....	4	4	2	10	3							
Shaft, slope and plane attendants.....	3	2	5	14	11	9	5	25	21			
Locomotive engineers.....	6	6	2	2	2	2	2	2	2			
Drivers.....	8	15	23	27	18	15	15	51	35			
Runners and spraggers.....	3	3	30	20	13	8	41	29	14			
Electric motormen.....	2	2	4	5	5	5	5	16	10			
Motormen's helpers.....	2	2	4	5	5	5	5	16	10			
Road cleaners.....	3	7	10	14	6	6	12	13	13			
Trackmen.....	1	1	2	1	1	1	4	5	2			
Stablemen.....	1	1	2	1	1	1	1	2	2			
Shoers.....	1	1	2	1	1	1	1	2	2			
Pulleymen.....	1	1	2	1	1	1	1	2	2			
Total transportation.....	23	30	53	94	63	50	35	148	143			
Pumpmen.....	2	2	4	5	2	1	8	7	7			
Miscellaneous												
Rockmen.....	3	3	9	7	7	1	15	13	12			
Rock stowers.....	3	3	9	7	7	1	15	13	12			
Timbermen.....	2	2	2	2	2	2	2	2	2			
Machinists.....	2	2	2	2	2	2	2	2	2			
Electricians.....	2	2	2	2	2	2	2	2	2			
Siltmen.....	2	2	2	2	2	2	2	2	2			
Others.....	2	2	2	2	2	2	2	2	2			
Total miscellaneous.....	0	3	3	20	19	11	10	40	45			
General												
Foremen.....	1	1	2	1	1	1	2	4	8			
Assistant foremen.....	6	10	16	10	6	3	5	14	10			
Driver bosses.....	1	1	2	1	1	1	1	2	2			
Timekeepers.....	1	1	2	1	1	1	1	2	2			
Total.....	7	11	18	11	7	4	7	18	22			
Total.....	169	223	392	322	181	174	130	485	792			

The men engaged in maintaining the ventilation of the mines are more numerous. Thus Mine No. 1 has fourteen; Mine No. 2, nineteen; Mine No. 3, twenty-seven, and Mine No. 4, eighteen. If the mine were placed on three shifts the number of men would have to be increased somewhat, as it would be necessary to have men working on the ventilation in every shift, so that promptness in making repairs would be assured.

The doorboys would have to be more numerous, for

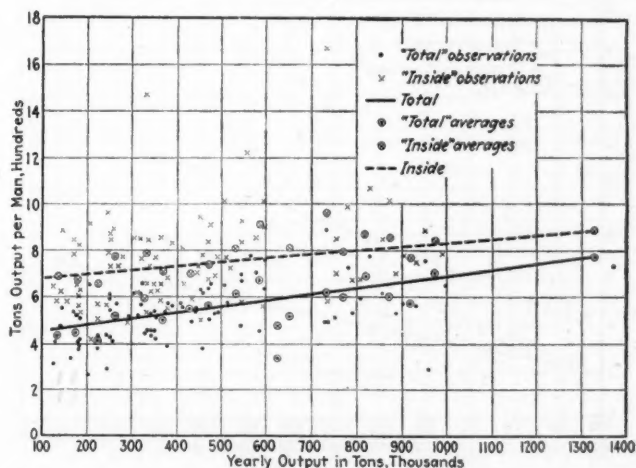


FIG. 2A. OUTPUT PER MAN AND PER INSIDE MAN IN MINES OF VARIOUS SIZES

The tonnage per employee and per underground worker increases quite definitely with the size of the mine. At a mine producing 100,000 tons a year the output per employee is apt to be about 440 tons yearly. At one producing 1,000,000 tons a year the figure will be about 680 tons.

even if the mine worked in sections, parts of the haulage systems would be used in connection with more than one section and boys would have to be supplied at the doors in these roadways during two or even possibly three shifts. It is not unlikely that it would be found that the force engaged in obtaining proper ventilation would be increased 50 per cent by the trebling of shifts.

It is in the solution of the transportation problems incident to the triple shift, however, that the biggest difficulty would be encountered. The simplest condition would be where there are several independent openings.

These might possibly be so grouped as to make it possible to work them in three shifts, using only the same number of men as are now employed on one. This, however, would be an unusual condition. In most cases there would be a mine with a long roadway along which all or a large part of the coal, no matter in what section it was produced, would have to be hauled. Some of the workings in that mine consequently would have to be allotted to one shift and some to another. It might be necessary to put the workings in one or more beds on one shift, to place the workings in one or more other beds in a second shift and to operate the rest of the beds in the third.

USE OF ROADS FOR THREE SHIFTS COSTLY

Here the transportation force would be increased greatly. It might well be necessary in both cases to increase considerably all the transportation employees, hoisting engineers, headmen and footmen, doortenders and their like. Only the men taking coal from the batteries or the face and hauling it to the parting or partings which the section or sections served and the door tenders in that section or sections would remain equal in number to those who transported the coal and tended the doors prior to the change.

In this case the three-shift operation might well involve an increase in the transportation force of 150 per cent without any compensation derivable from larger tonnage. The trouble today in the anthracite region is that sections of the transportation system are not, and

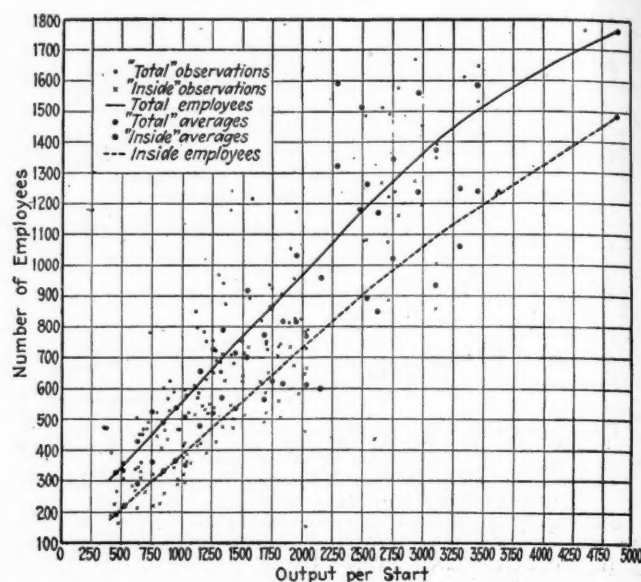


FIG. 3A. RELATION BETWEEN TOTAL AND INSIDE EMPLOYEES TO OUTPUT PER START

This chart is based on actual running and the number of employees plotted is actual and not figured in proportion to the output of the colliery as in Figs. 1a and 1b.

cannot be, worked to capacity, and any dilution of the traffic by the introduction of the three-shift system would merely intensify a condition which is even now sufficiently crippling.

In those mines where silting is practiced the three-shift plan would make it necessary to silt on all three shifts, provided that the preparation equipment and the mine were run with equal continuity. This would mean increasing the force almost 200 per cent with only the same output and the same amount of silting accomplished. It is true that the building of batteries to retain the silt and the laying of silting lines would not involve any more work for three shifts than for one and, therefore, the cost would not increase proportionately to the number of shifts.

As may be expected, some relationship can be shown between the outputs of collieries and the number of men they employ. In order to show the effect of the output on the number of men employed, nineteen curves have been compiled from data received from 90 collieries the total output of which is 44,205,896 tons annually. The data from each colliery were plotted separately and an average struck for each 50,000 tons increase. These latter points were indicated on the charts by circles. Curves were then drawn giving due weight to these subaverages considering the number of observations involved in each. The high or low points apparently neglected are usually from meager and often single observations or from known abnormal conditions. The curves are intended to represent general conditions and not individual cases.

Fig. 1a contains curves showing the total number of men employed per 10,000 tons of yearly output and the number of inside employees. Fig. 1b has curves which show the number of outside and preparation employees employed for 10,000 tons yearly output. These four curves show that a decreased force of men is required per unit of production as the output increases. They further show that the preparation forces per ton produced decrease in number with increased output faster than those in the other two departments.

Fig. 2a and 2b consist of four curves which show the output per man employed. These curves show how

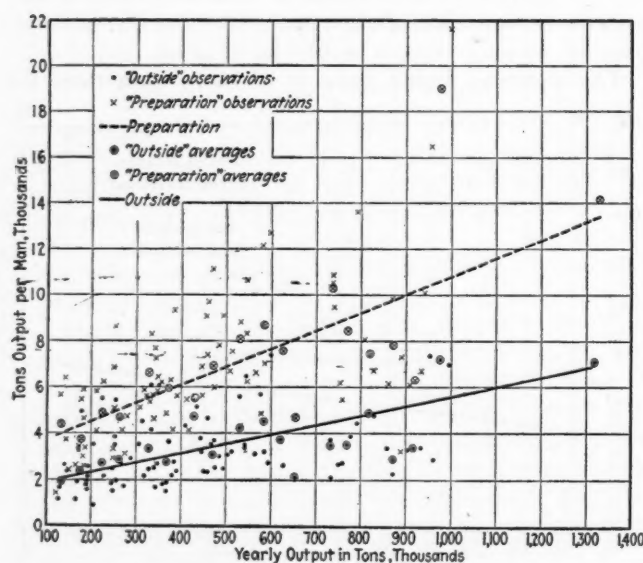


FIG. 2B. TONS PER PREPARATOR EMPLOYEE AND TONS PER SURFACE MAN IN MINES OF VARIOUS SIZES

In nothing is the advantage of bigness so evident as in the preparator. Though the employees generally increase their efficiency 55 per cent in passing from a 100,000-ton mine to one producing 1,000,000 tons yearly, the preparator employees treble their effectiveness by a similar change and there is no hint that there is a limit to this condition.

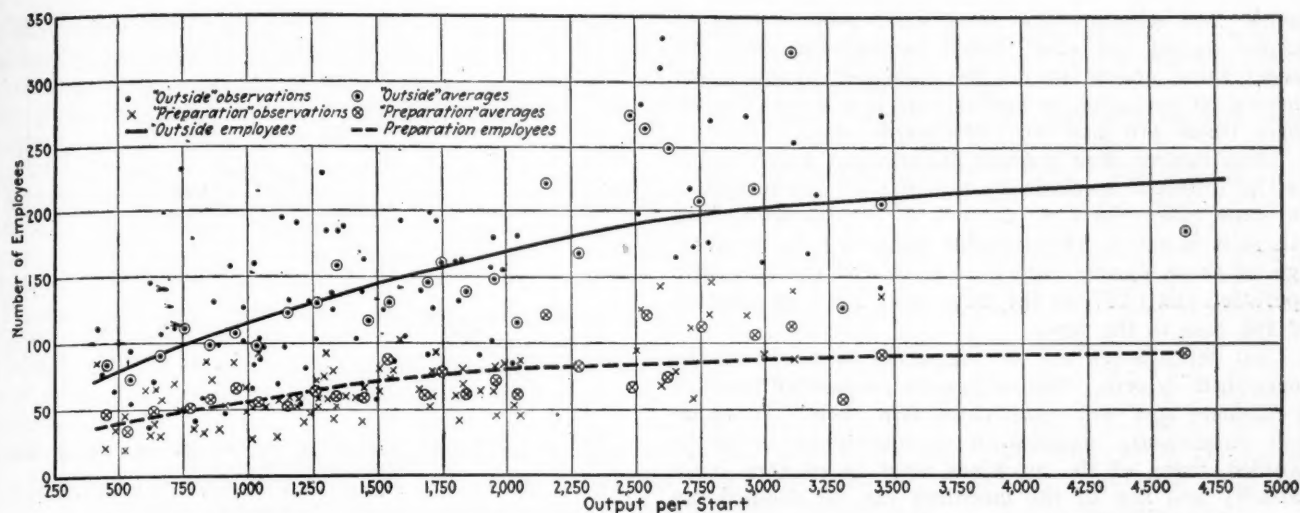


FIG. 3B. RELATION BETWEEN OUTSIDE AND PREPARATION EMPLOYEES TO COAL HANDLED PER START

It will be noted that the line showing the number of preparator employees parallels the base line from about 3,500 tons to about 4,500 tons per start. Thus the same number of men can handle

coal in the preparator regardless of the amount. They have become tenders, not workers, and the number of machines tended and the size of them are matters of no moment.

the output per man increases as the collieries increase in size. Figs. 3a and 3b show the number of men employed per start in collieries of various capacities. Figs. 4a and 4b show the number of men employed by collieries of different yearly outputs. Fig. 5 gives curves constructed from the preceding charts which show the total number of employees for any given output which would be employed when the mines were run on one, two and three shifts.

These charts furnish the necessary data for a reasonably accurate analysis of the subject under discussion, when the output is divided in three and the full output is produced in three shifts instead of one. Take first the operation of a mine having a capacity of 900,000 tons per year or approximately 3,200 tons per shift, assuming 280 starts per annum, which is the average number of starts of the 90 collieries considered.

LARGE MINE GIVES LARGE TONNAGE PER MAN

It is now to be operated at the same tonnage but to have an output of only 1,070 tons in each shift. Referring to the curves in Fig. 1a it will be seen that for the larger mine it requires 12.1 inside employees per 10,000 tons annual output as compared with 14.7 inside employees for the mine with the same output but operating on three shifts.

Multiplying by 90, it will be found that the mine which would have produced its 900,000 tons with 1,089 inside men will now take, when operated on three shifts, 1,323 men to attain the same production. Thus the output, after the division of the work, will be attained by the employment of 234 more inside men than before, provided, of course, the personal efficiency of the men is unaffected by the change, which, as has been seen, is not likely to be the case.

The curve in Fig. 2a shows the output per inside man for mines of different sizes. A mine producing 900,000 tons per annum would have an output per man of 815 tons per year. In a mine one-third the size the output would drop to 710 tons. The difference is 105 tons per man, which is the loss in output sustained where the larger mine is operated on a three-shift basis. Thus, at the larger mine working one shift per day there would be 1,104 inside men and at the smaller mine working three shifts a day 1,268 inside men.

From Fig. 3a it is seen that the larger mine would produce its tonnage at the rate of 3,200 tons per start with 1,120 inside men, whereas the smaller mine running at the rate of 1,070 tons per start would have 410 men. Running the smaller mine three times as many shifts to get three times the tonnage, the equivalent force of men would not number 1,120 but 1,230 inside men.

Fig. 4a shows the number of men employed in direct relation to the number of tons produced, not taking into consideration the number of starts. Here the mine with 900,000 tons of annual output would employ 1,118

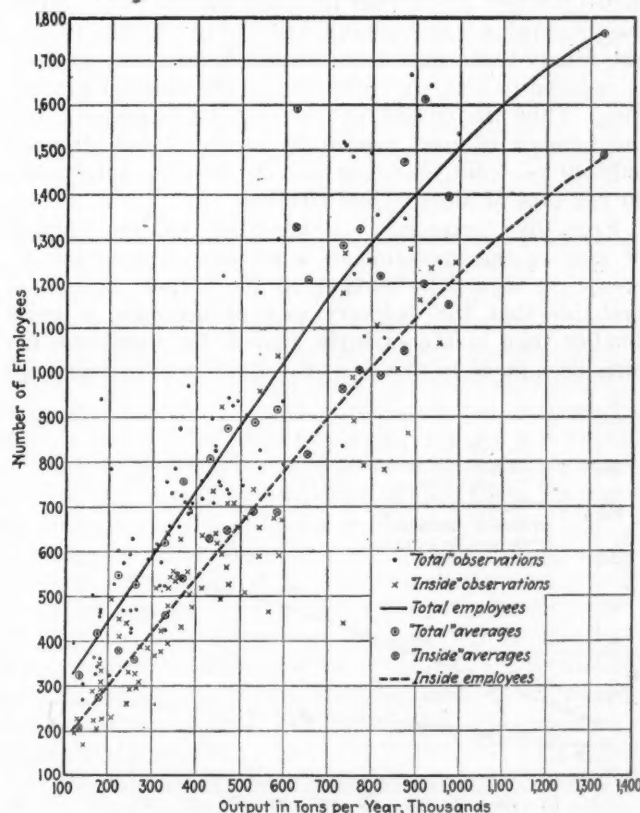


FIG. 4A. RELATION OF TOTAL AND INSIDE EMPLOYEES TO OUTPUT IN TONS PER YEAR

At a colliery producing 100,000 tons per year, 300 men are required, and at one producing 1,000,000 tons, 1,500 men. Thus five times as many men produce ten times as much coal. All of which testifies to the greater effectiveness per labor unit of the big mine.

inside men whereas the mine with 300,000 tons of annual output per shift would employ 416 men, the larger mine producing 900,000 tons per annum from three-shift operation as against one that would require three times 416 men, or 1,248 inside men.

These figures show a slight discrepancy, which is due to the different methods by which they are compiled. In some cases the time feature is considered and in others it is not, so the probable result will be an average of these figures, which is 1,108 for the one-shift operation and 1,267 for the three-shift mine, an addition of 159 men to the force.

Coal preparators are not designed to work on the three-shift system. The anthracite preparator involves a complete and very complicated flow sheet. If undue and unnecessary duplication of machinery is to be avoided, many of the machines must be of very large capacity and few of the machines can be stopped for repairs without disarranging and usually stopping the entire process. In this it differs from the metal mills, in which there are a large number of similar machines, which can be stopped and repaired without materially reducing the output. Under the present system of preparator operation it is possible to examine all the equipment every night and see that it is in proper shape, and if not, have it in working order in time for the next morning's start.

LOWERED OUTPUT; NEARLY HALVED EFFICIENCY

If the preparator is already built, the proposition that it be run on three shifts instead of one without correspondingly increasing the output is, of course, unreasonable. I know of one mining operation in the anthracite fields where the output has fallen from more than 1,000,000 tons a year to about 350,000 tons. When the preparator was cleaning and sizing the larger output ninety-three men were required, but that number is reduced to fifty-six by reason of the reduced production. Thus the output has decreased 65 per cent, but the number of men needed to handle it has dropped only 40 per cent, showing for the smaller output but 60 per cent of the original efficiency.

From the foregoing it is apparent that the number of men in the operation of a preparator does not decrease in direct proportion to its output, and it is probable that the ordinary rate of decrease is much smaller than in the example quoted, for improvements have been made in this preparator which have decreased

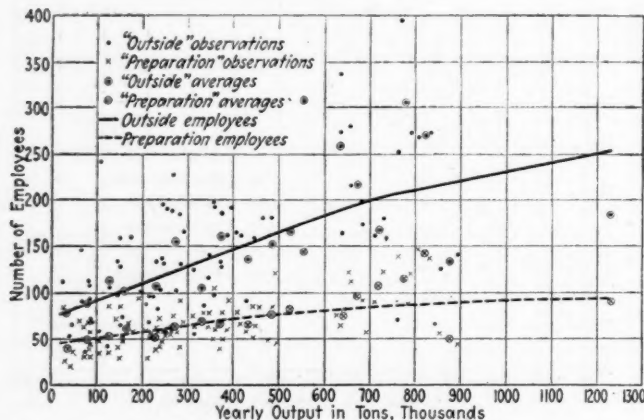


FIG. 4b. RELATION OF OUTSIDE AND PREPARATION EMPLOYEES TO OUTPUT

In a preparator that handles 100,000 tons yearly fifty-two men are required. One which prepares ten times as much will require only ninety men, which fact shows how much more efficient is the large operator than one that is smaller.

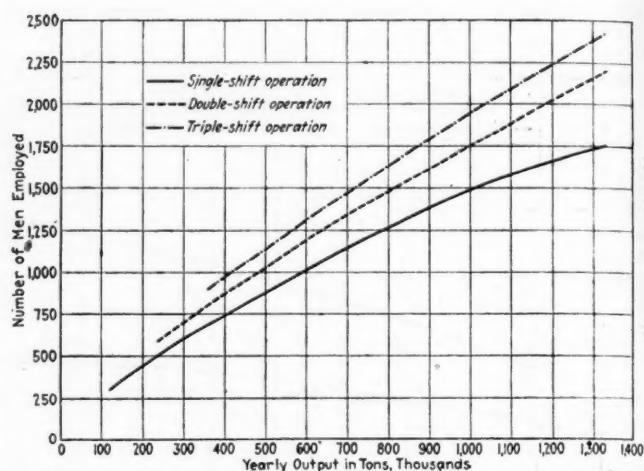


FIG. 5. RELATION OF TOTAL MEN NEEDED FOR MULTIPLE-SHIFT OPERATION TO YEARLY OUTPUT

The curve for triple shifting is made by finding the number of men in a plant of one-third the capacity and multiplying that number by three. The curve for double shifting is made by finding the number of men in a plant of one-half the capacity and multiplying that number by two. In view of the inherent inefficiency of men on a triple shift and of the difficulty in making repairs the assumptions made are not quite true and if corrected the number of men in the double and triple shifts would be increased.

the number of men required to operate it entirely irrespective of the output.

For this reason were the output of the mine put back to 1,000,000 tons, the preparator would now size and clean it for market with less than ninety-three men. Nevertheless, using this instance on the face as an example, 168 men would be required if the preparator were run on a three-shift system and only ninety-three if run only one shift. This shows that the conversion of a preparator of this large size from one operating on a single shift would require the employment of seventy-five additional men.

Consider the assumption that the preparator is to be built and the size can be regulated to suit the three-shift method of operation, we can assume that it will be as economical as a plant to prepare and size an output one-third as great on the one-shift basis. With this in view refer to Fig. 1b, where it is shown that two men are required in the preparator for each 10,000 tons per year of preparator output where 300,000 tons are sized and cleaned per annum. Thus sixty men would be employed on each eight-hour shift, and if the plant were run three shifts in every twenty-four it would be necessary to employ 180 men. This would give an output of 900,000 tons per annum.

Fig. 1b also shows that a tonnage of that size could be cleaned and sized by a force averaging 0.88 of a man per 10,000 tons per annum in a preparator of a size having sufficient capacity to clean and size the coal in eight hours. Such a preparator would require therefore seventy-nine men. Thus a big preparator working eight hours would not require as many men by 101 as a small preparator attaining the same capacity working three shifts.

From Fig. 2b it is possible to deduce that 170 men would be needed for three-shift operation as against ninety for a plant so adequate that it could prepare the coal in an eight-hour day. The curves in Fig. 3b show that whereas 174 men would be required for three-shift operation eighty-eight men would suffice with the larger plant. The co-ordinates of the curves in Fig. 4b show that 174 men would be required for the small plant working twenty-four hours and eighty-seven men for the large plant operating but eight hours. Averaging

all the results, the conclusion is arrived at that whereas eighty-six men would be sufficient to work a single-shift preparator producing 900,000 tons per annum, 175 men would be needed to effect the same result in one working continuously. Thus the larger preparator reduces the number of men employed by eighty-nine.

Having seen from the curves the effect of three-shift output of the preparator let these be compared with the actual force accounts of four anthracite preparators which are shown in Table II.

It has already been seen that where only one foreman is employed on single-shift operation there is no way in which the trebling of this expense can be avoided when three-shift operation is introduced, except indeed by an increase in tonnage. On every shift there must be one foreman. The same is true of the ticket taker. The number of dumpers also would be multiplied by three. The number of platemen or tablemen probably could be decreased per shift but not in proportion to

the number of shifts. It would take at least twice as many for three shifts as for one. The same may be said of the pickers or slatemen.

The number of spiral, jig and machinery attendants on any shift probably could not be reduced even though the output per shift were cut in three. The number of all the other employees probably would have to be trebled, with the exception of the car loaders and runners, the number of whom would increase by only about 100 per cent. Taking these figures and allowing for an equal number of men on each shift for each operation and making due allowance in some cases for abnormal conditions, it is found that for the same output in 24 hours by using the three-shift plan, Mine No. 1 would need 141 per cent more men for preparation, Mine No. 2 would use 147 per cent more men, Mine No. 3, 120 per cent more and Mine No. 4, 119 per cent more. These figures may be compared with the increase from a minimum of 89 per cent to a minimum of 127 per cent in the number of men employed in the preparator as shown by calculations made from the curves.

TABLE II.—OUTSIDE FORCE AT FOUR ANTHRACITE COLLIERIES

	Mine No. 1	Mine No. 2	Mine No. 3	Mine No. 4
Transportation				
Stationary-hoist engineers....	9	9	10	13
Locomotive engineers & helpers	6	4	4	4
Headmen, footmen and plane tenders.....	5	6	9	11
Drivers, runners and spraggers	5	1	4	5
Car oilers.....	1	..	1	2
Track repairmen.....	2	3	1	6
	28	23	29	41
Preparation				
Breaker bosses.....	1	1	1	3
Ticket takers.....	1	1	1	2
Dumpers.....	1	1	1	6
Platemen and tablemen.....	9	1	11	28
Pickers and slatemen.....	5	8	6	3
Jig and spiral attendants.....	9	7	6	6
Machinery attendants.....	2	..	..	1
Oilers.....	1	1	1	1
Ropemen.....	..	..	..	..
Breaker cleaners.....	1	1	2	1
Engineers.....	1	..	1	..
Breaker pumpman.....	1	..	..	7
Miscellaneous.....	1	1	2	7
Box-car loaders.....	1	4	3	7
Coal-car loaders.....	5	1	3	..
Coal runners.....	..	1	1	..
Car cleaners and patchers.....	..	..	..	..
	39	28	40	64
Distribution of Refuse				
Locomotive engrs. and helpers.	..	1	..	2
Machine attendants.....	2	..	1	3
Laborers.....	6	3	..	1
Pulveriser and borehole attendants.....	..	..	..	6
	8	4	1	..
Repairs and Maintenance				
Blacksmiths.....	5	2	4	3
Carpenters.....	15	4	4	9
Mine-car repairmen.....	..	6	4	..
Machinists.....	2	2	1	2
Masons.....	1	..	1	..
Electricians.....	..	1	..	..
Machine attendants.....	..	1	1	..
House repair men.....	..	1	1	..
Laborers.....	..	..	..	6
	23	17	16	20
General				
Watchmen.....	2	2	2	3
Court house (coal inspection)...	..	1	1	2
Stablemen.....	1	1	1	3
Teamsters.....	1	1	2	2
Fan engineers.....	..	1	1	4
Fresh-water supply.....	2	..	..	..
Laborers.....	10	4	10	..
Propmen.....	6	2	3	8
Crane engineer.....	..	..	..	1
	22	12	20	23
Steam				
Firemen.....	6	6	13	6
Fuelmen.....	1	1	1	2
Ashmen.....	2	1	..	5
Boiler repairman.....	1	..	..	..
Watertender.....	..	1	..	..
	10	9	14	13
Supervision				
Foremen and assistants.....	1	1	1	2
Clerks.....	3	3	3	4
Messengers.....	1	..	1	..
	5	4	5	6
Totals.....	135	97	125	173

SMALL PREPARATOR EMPLOYS MANY MEN PER TON

Using the information afforded by the curves and considering all the outside forces at the collieries except in the preparation plant, it is found from Fig. 1b that at a colliery having an output of 900,000 tons on one shift, or 300,000 tons on each of three shifts, 351 men would be needed for the three-shift operation and 180 for the single-shift operation. From Fig. 2b it is seen that the output per outside man in the three-shift operation is 2,720 tons whereas for the single-shift operation it is 5,200 tons. Thus 331 men will be required for three-shift operation and 173 for single-shift. From Fig. 3b, assuming 280 starts per year, it is seen that 360 men are needed for the three-shift and only 206 for the single-shift. Lastly from Fig. 4b, 330 men are needed for the three-shift and 212 for the one-shift operation. Averaging these figures it is found that 343 men are required for a three-shift operation and only 193 men for a single-shift operation with the same output, or a saving for the single-shift of 150 men.

Totaling the previous results which have been obtained from the curves it is found that with three-shift operation 1,794 men will be required, whereas with the single-shift operation which now obtains only 1,387 men are needed. Thus the present method saves the employment of 407 men. Fig. 5 contains summation curves showing the average number of men employed and also the number that would be required for two- and three-shift operation of a colliery of the same size but with the output divided into two or three, as the case may be, depending on the number of shifts.

This study of the curves of the average number of men employed in anthracite collieries shows that more men are required to produce the same tonnage in three shifts than would be needed in one shift. In the example taken it shows that the force of men required would have to be increased 29.4 per cent if the mine were to be placed upon the three-shift basis without increasing the output.

These figures, of course, are general and only approximations, but they are believed to err on the side of conservatism. Though it is true that some classes of employees, as pumpmen, would not be affected by the number of shifts worked, these variations are amply compensated for in the conservative allowances for other classes of employees.

Contracted Landing Area at Head of Plane Makes Difficult Mine-Track Problem

BY WILLIAM REID
Clarksburg, W. Va.

THE ACCOMPANYING illustration shows the solution of a complicated track problem at the mine of the Fort Clark Coal Co., Wilsonburg, W. Va., the general offices of which are at Clarksburg, in the same state. This mine, opened a little more than three years ago, is reached by an incline about 600 ft. long from tippie to knuckle and lying on approximately a 20-deg. grade.

At first only two openings were made, these having a 50-ft. pillar between them. They are the two entries to No. 1 mine, and are shown on the extreme right and extreme left of the illustration respectively. Owing to the abruptness of the hillside little outside standing room for cars was obtained. At the top of the incline the tracks extend parallel to each other for a distance of 24 ft., there being a clearance of 24 in. between them. They then diverge over a space of 48 x 50 ft., to the portals of the two openings mentioned.

The loads have a grade of $1\frac{1}{2}$ per cent in their favor and the inclination favoring the empties is 2 per cent. This favorable arrangement is obtained by lowering loaded cars invariably on one side of the incline and raising the empties on the other. By this means the knuckle of the empty track can be raised to a sufficient height to afford the empties a favoring grade toward the mine.

In order to increase development another opening was made around the hillside to the left of, and beyond, the illustration. The problem of proper track arrangement arose with the purchase of a haulage locomotive. This problem consisted largely in the transference of this machine from one mine to the

other while still keeping the trolley pole on the wide side of the heading or on the brake side of the car. In laying out the mine track it had been kept as close as possible to the side of the heading opposite the brake mechanism on the cars, so as to insure that the trip rider should have ample room to pass along the trip.

The problem presented could have been solved easily by placing trolley poles upon both sides of the locomotive, but it was not thought advisable to adopt that plan. To meet the difficulty another opening was made between the loaded and empty tracks of No. 1 mine and called the "run-around." The complete layout by which the problem was met comprised six switches, six tracks, two crossings and a semicircular track, all placed on an area measuring 48 x 50 ft. The illustration shows how the tracks were laid. The layout has given full satisfaction.

The layout as here shown was designed by myself. All frog and switch dimensions were given to the Helmick Foundry & Machine Co., of Fairmont, W. Va., which firm furnished the frogs, crossings and switch points, the latter provided with spring attachments on the bars.

Now let us follow the movement of the locomotive in transferring from one mine to the other. Suppose that the motor comes with a loaded trip from mine No. 2. It cuts loose from the trip at the switch *B*, passes through *C* and around the curve to the right to *F*, where it gets behind the empty trip. As an alternate procedure the locomotive may pass through switches *E* and *D* in the run-around and get ahead of the trip of empties. The run-around intersects the empty sidetrack or opening underground.

Similarly if the locomotive comes out of mine No. 1 with a trip of loads, it cuts loose at *A*, leaving clearance at the frog. It then passes up the run-around

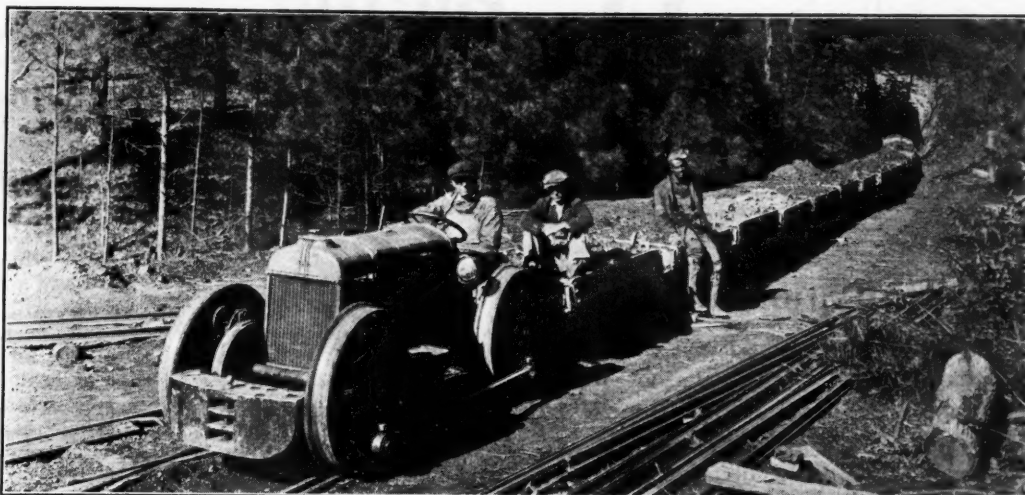


Trackwork at Wilsonburg Mine

With only 48 ft. x 50 ft. in which to place switches, arrangements were made at the head of the plane for the many switches by which to handle cars to two mines. The knuckle of the plane is only 24 ft. from the points of switch *A*, which are at the extreme lower right-hand corner of the illustration. Standing trip room for No. 1 mine is provided in the drifts of that operation. A run-around between the drifts enables the locomotive to get behind the empty trip.

Tractor Locomotive

Uses about one gallon of gasoline and one-twentieth of a quart of lubricating oil for every 20 tons of coal or fireclay hauled a mile. The distance traversed each way is 4,560 ft., and the locomotive makes ten or eleven round trips per day.



through switch *D*, comes back to *E*, then over the curve to the left and attaches to the empty trip beyond switch *C* on the empty track to No. 2 mine.

Owing to the position of the camera when the picture was taken the width of the space occupied by the tracks is distorted and exaggerated. Those who view the actual installation, however, consider it quite a feat in track laying.

Adapting the Tractor to Mine Haulage

GASOLINE-LOCOMOTIVE development for mine use hitherto has followed more or less closely the progress made by the automobile builder. During recent years, however, another form of self-propelled vehicle closely paralleling the locomotive in function has made its appearance. This is the farm tractor. This machine has been much more rapidly developed than the automobile, for the builders could draw readily on the experience of the makers of pleasure vehicles.

During the past decade the farm tractor has thoroughly demonstrated its usefulness and reliability. Today these machines are used by the thousands throughout the rural districts of both this and foreign lands. It is little wonder, therefore, that an enterprising builder of mine equipment should adapt one of the best known of these machines to mine haulage.

Breese Adamson, of the Adamson Motor Co., Birmingham, Ala., has built an attachment for the Fordson tractor that adapts it to use upon the rails of a mine-haulage road. This attachment, for which a patent application has been entered, follows as far as possible the same general construction as that adopted in the tractor itself. The wheels are, of course, replaced with drivers, these being connected by means of side rods, so as to render the entire weight of the machine effective for pulling or pushing a load. A suitable frame and bumpers also are supplied, the point of pull being in the same relative position to the tractor as before, so that the effectiveness of the machine is in no way impaired.

As is well known, the Fordson tractor is built with "three speeds forward and one reverse." This is retained in the Adamson locomotive. In order to keep the machine constantly in front of its load, both when going into and coming out of the mine if room for a *Y* is not available, simple turntables have been developed. These may be installed almost anywhere, and as they rest on ball bearings they reverse the locomotive with ease.

It is asserted by the builder that conversion from

tractor to locomotive or back again can be made by an ordinary mechanic in three hours. Aside from the sanding device only thirty-four bolts are used in the attachment.

The accompanying illustration shows one of these locomotives at work at the mine of the Lehigh Coal Co., Lehigh, Ala. At this operation the length of the haul is 4,560 ft., and the machine makes ten to eleven round trips per day with ease. The average gross weight hauled per trip is 30 tons and the maximum grade is $1\frac{1}{2}$ per cent. The entire journey, after the trip of cars has been gotten under way, is made in high gear. This machine moved 1,323 tons of coal and fireclay, traveling a total distance of $53\frac{3}{4}$ miles, empty cars being returned over the same distance, with a total fuel consumption of 60 gallons of gasoline. Three quarts of lubricating oil also were used, the consumption of transmission oil being negligible.

Ill-Centered Wood Rollers Ruin Bearings And Frequently Fail to Roll

IT IS difficult to bore a straight center hole through a wood roller because the grain causes the drill to swerve. If such a roller be sawn in two along a diameter the hole will be found to be crooked with an offset in the middle, for the hole will not be continuous but drilled from each end. Gudgeons, or journals, can be driven into such holes only with great difficulty. Often when the holes are much out of line the cost of inserting the gudgeons add materially to the original cost. Nor is that all when the roller is assembled in the bearings it is not concentric with the gudgeon. If the roller revolves this ruins the bearings. If it does not, the roller is of no service; it soon grooves and wears out, being sawn through to the gudgeon by the action of the rope.

The Colonial Supply Co., of Pittsburgh, it is said, has a specially designed machine that will bore the gudgeon hole true within a thirty-second of an inch, giving the roller greatly increased life. The rollers are delivered either without gudgeons or with new, and consequently perfectly true, journals fitted onto the rollers before they are sent out.

Another important matter is to get the right wood for the manufacture of rollers. First grade black-gum wood is to be preferred. It should not be Tupelo wood, which grows in marshes, for that material is not hard enough or sufficiently wear resisting. Sweet, or red, gum is even less satisfactory than Tupelo.



Problems of Operating Men

Edited by
James T. Beard



Ventilation of Gassy and Dusty Mines

Ventilation an Important Factor in Operation of Mines—What Constitutes Good Ventilation—Requirements of the State Mining Laws—Booster Fans Condemned—Lessons Taught by Experience

PERMIT me to offer a few further thoughts on the subject of good ventilation. Mine Foreman, writing in *Coal Age*, July 7, p. 18, expresses a real fact when he says, "Ventilation is the most important question in the operation of a coal mine."

Without ventilation of some nature, all underground coal mining would soon cease. The sanitary condition of mines depends, in a large measure, on the efficiency of the ventilating current. Men and animals do more and better work in a good supply of fresh air than is possible in poor air.

EFFICIENT MINE VENTILATION A GOOD INVESTMENT

Good ventilation is a good investment in the operation of a coal mine. It is astonishing how little attention and thought is given this important question by many mine officials, especially in the smaller mines.

During the four years that I was mine inspector in the western part of this state, I had an average of seventy-five mines of various classification in my charge. Trouble in regard to ventilation was confined mostly to the small mines. Many of these mines were in charge of foremen who seemed to know or care but little about the ventilation of the workings.

FUNDAMENTAL PRINCIPLE

Henry Bock, in his letter, *Coal Age*, Apr. 28, p. 756, is also right when he expresses the thought that the fundamental principle of ventilation is to conduct the air current to the faces of the working places in such quantities that it will dilute and carry away all poisonous gases and supply the miner, in every section of the mine, with wholesome air in which to work.

It is the equal distribution of fresh air throughout the entire mine, making as nearly as possible, a uniform temperature in every section, that constitutes good ventilation. A large volume of air entering a mine does not always indicate that the mine is well ventilated. A sufficient volume of air may be entering the mine, but the quantity reaching the working faces may yet be inadequate owing to leaky stoppings, doors and air bridges.

In all class-A mines in this state, the mining laws provide that the minimum

amount of fresh air supplied to each person and animal employed in the mine shall be 150 cu.ft. per min. for each person and 600 cu.ft. per min. for each animal.

In my opinion, this law cannot be so construed as to mean that its requirements are being met when the specified amount of fresh air, for each person and animal, is being forced into the mine. The law evidently means that the specified amount of air for each person and animal is to be delivered to them fresh in the remote sections of the mine.

Neither will the requirements of the law be met when a miner working in an extreme heading is supplied with 150 cu.ft. of air per minute if that air has been previously used to the limit by men and animals, and is no longer fresh from the outside. But, as Mr. Bock states, "To do this requires skill in the arrangement of the ventilating system throughout the mine."

BOOSTER FAN TO BE USED ONLY IN EXCEPTIONAL CASES

In extensive mines where the air has to be delivered from two to two-and-one-half miles distant and must then be conducted through many working places, as required by law, I think all will agree, it becomes a troublesome problem as well as an expensive one. In such cases, in order to avoid expense, I greatly fear the booster fan is too often resorted to as a makeshift.

There may be instances where the temporary use of a booster fan is admissible; but when that device is made a permanent factor in the ventilation of a gassy mine I join with W. H. Luxton in opposing its use. There are too many "Ifs" involved in the use of a booster fan, in the ventilation of deep and extensive gassy mines.

I frankly admit that it will often be less expensive to install a booster fan, in extended workings, than it would be to make the necessary adjustments and improvements to deliver the required air from the outside. But just here is where the danger lies of its use becoming general in these mines.

From the standpoint of economics, the booster fan will continue to be installed, with the result that the airways, from the booster back to the outside will receive little if any attention and become

more and more obstructed. The little booster will accomplish no more than to fan the same air round and round, until the air becomes charged with gas and an explosion takes place and a number of lives are snuffed out.

When that happens, believe me, the rescuing parties will have some job before them exploring such a mine. In the first place, all mines should be opened up from the start and developed with a view of giving and maintaining a good ventilation throughout the operation when it becomes more extensive.

NEED OF A VENTILATING BOSS

In my opinion, in order to insure better ventilation and the safety of life, in all large gassy mines, there should be a ventilating boss, who would have charge of the ventilation and the oversight and construction of all bratticework, doors, airways and the sprinkling system where one is required. My observation shows that, in such large gassy mines, the foreman has enough to do in looking after the miners in their working places, the haulage system, the output and general conditions relating to the operation of the mine.

Referring to the letter of Oscar H. Jones, Sept. 29, p. 495, permit me to say, it is not because of a supposed incapability of the mine foreman to arrange the ventilating system of the mine in a way to get the best possible results, that I advocate the employment of a ventilating boss in a large gassy mine. My purpose is to relieve the foreman who has his hands full of other things, and to insure a more efficient ventilation and a better protection of life and property.

MANY CAPABLE MINERS

Experience has taught me that mine foremen are not the only men, in and around coal mines, who are capable of efficiently ventilating the mines. I know uncertified miners whom I would much rather risk with the ventilation of a mine than some foremen of my acquaintance.

It is true that the mining laws of this state make it the duty of every mine foreman to look after the ventilation, besides compelling him to shoulder numerous other responsibilities resting upon him. But, I am fully convinced that were the foremen in large gassy mines relieved of the charge and upkeep of the ventilation and this duty placed in the hands of a capable man better results would follow.

In conclusion, then, let me say that I have filled the position of ventilating

boss in two of the most dangerous mines in this state. These mines were both gassy and dusty. Moreover, the formation was extremely irregular, making the mines difficult to ventilate properly. In the Nelson mine I served as ventilating boss for a term of six years and, likewise, two years in the Prospect mine.

EXPERIENCE SHOWS DANGER IN NEGLECTING VENTILATION

My experience in those two mines taught me thoroughly the danger of neglected and inefficient ventilation in gassy mines. On Dec. 20, 1895, an explosion occurred in the Nelson mine, killing 28 persons. I assisted in taking out the dead and cleaning up the mine. It was a gas explosion augmented by dust. Both the ventilation and the dust conditions had been neglected in that mine. Later, these conditions were somewhat improved and the mine was then operated with safety lamps.

On Mar. 30, 1902, another explosion occurred in the same mine, killing 16 persons. This time it was a dust explosion that was caused by a blownout shot. Again I assisted in taking out the dead and cleaning up the mine. When the place was ready to resume operations, I was made ventilating boss and held that position till the mine was finally abandoned May 16, 1908.

With the 23 years' experience gained in those gassy and dusty mines, I learned to know what an inefficient ventilation will do in such mines, and what will sooner or later result from the lack of an efficient sprinkling system in a dusty mine. As a means of safety, in the one case, the air must be conducted to the working places in sufficient quantity to render harmless all gases generated; and, in the other case, the dust must be removed or humidified until it also is rendered harmless.

Dayton, Tenn. JOHN ROSE,
Former District Mine Inspector.

Fan Ventilating Two Seams

*Failure ascribed to wind pressure—
Testing for motive columns in shaft
—Ascensional ventilation in deep-
lying seams.*

REFERRING to the failure to ventilate both seams by a single fan, as explained by "Master Mechanic," in *Coal Age*, Oct. 6, p. 542, allow me to suggest that the trouble in this case, may be due to a high wind pressure acting against the fan.

Under such atmospheric conditions, it often happens that the action of a ventilating fan is partially neutralized by the opposing elements. Perhaps, the fan chimney, in this instance, is exposed to a strong wind pressure that tends to counteract the pressure due to the fan and the ventilation in the mine is retarded as a result.

The idea has been suggested that a motive column may be formed in the shaft, which opposes the general circulation that the fan would establish in the mine. To prove or disprove this effect, I would make tests to ascertain

the amount and direction of the air flowing when the fan is stopped. These tests should take account of temperature of the air, barometric conditions and effect of wind pressure.

The second shaft is said to be 5 x 10 ft., in section, and 260 ft. deep; but it is not stated whether the top of the shaft is above or below the location of the fan.

Assuming that the fan is exhausting and the new shaft is a downcast for the two seams, I can see no reason why this fan should fail to ventilate both seams, if it is capable of producing 150,000 cu.ft. of air per minute as stated by the correspondent.

ASCENSIONAL VENTILATION EASY

An Illinois mine foreman, whose letter appears in the issue of Nov. 24, p. 848, has referred to old-country practice where a single fan ventilates eight or ten seams, pitching as high as 80 deg., and where it is probable the ventilation is wholly ascensional. There is of course no trouble to ventilate any number of seams, in such a case, provided the fan has the required capacity. The main air current is blown to the full depth of the shaft, from which point it will naturally distribute itself, in as many splits as are needed to ventilate the several seams.

In all such cases, the main return air-course is well above the workings, to comply with the state laws of Belgium and France, which specify that the arrangement must be such that the return air cannot re-enter the mine, or descend to a lower level.

Stated briefly, I would consider this present case a question of two splits, one being much longer than the other. Then, by placing a regulator in the return of the shorter split, it should be possible to regulate the air current as desired.

The lower seam being the longer of the two splits, the intake air should be forced down to that level. The regulator in the upper seam can then be so adjusted as to permit only the proper amount of air to pass in that split. Such an arrangement should present no difficulties in ventilating both seams.

Peru, Ill. GASTON F. LIBIEZ.

Loss of Zinc Chloride in Treating Wood

Large loss of the impregnated solution shown by experiments reported in a French publication—Authority quoted in translation.

KINDLY permit me to offer the following, in reply to the letter of Frank G. Breyer, which appeared in *Coal Age*, Dec. 22, p. 1015, regarding the loss of zinc chloride in the preservation of wood.

It is not my desire to enter into any discussion of the matter or to start a controversy. I only wish to give the authority for the statements made in my previous article, to which Mr. Breyer takes exception.

The information relating to the loss of zinc chloride when used as a wood

preservative was taken from a French monograph on that subject, which I will translate verbally, as my authority for the statements made. The author states as follows (translated from the French):

In 1854, Bethell began to inject ties required for the tracks of the Compagnie du Midi; but this was given up after two years, on account of the unsatisfactory results obtained by the process. It was established that almost the entire quantity of chloride of zinc is carried away by rain water.

According to experiments made along these lines, ties of pine wood impregnated with chloride of zinc, show, three years after impregnation, a loss of from 80 to 85 per cent of the original quantity. In ties of beech wood, this loss increased to from 90 to 95 per cent.

Chloride of zinc is an acid salt and, in the combination it forms with albumen, one asks oneself, What becomes of the chlorine? According to the opinion of Hutin and Boutigny, the chlorine set free alters the vegetable fiber.

I claim no personal knowledge about this, but have accepted these statements as essentially correct, because they coincide with what men of wide experience in wood preservation have told me.

F. G. ZINSSER.

Hastings-on-Hudson, N. Y.

Essentials in Ventilation

*Air-tight stoppings necessary to maintain good circulation in a mine —
Trapdoors an unnecessary evil —
Legislation needed to make certain specific requirements in mining.*

BEING deeply interested in the matter of good ventilation in mines, I have read with great interest the several letters relating to that subject. All practical miners agree that the ventilation of a mine is the most essential factor in its operation.

In my experience, there are a few chief points that must be considered. First, the operator must install a fan capable of producing the necessary quantity of air. Second, it is necessary to build substantial air-tight stoppings, in order to maintain a good circulation and carry the air to the working face, where it is needed to make the mine healthy and safe for work.

TRAP NEEDED WHERE DITCH IS CARRIED UNDER DOOR

Speaking of air-tight stoppings and doors, one important point that is often overlooked is the carrying of a drainage ditch under a door. It generally happens that the ditch is left open, with the result that there is a large leakage of air at that point.

When a ditch is to be carried through a door, a water-trap should be so arranged as to prevent the leakage of air. The seal should be sufficiently strong to resist the air pressure; or, otherwise, air will force its way through the water.

From time to time, writers in *Coal Age* have condemned the use of trapdoors in mines. I agree with them fully. Trapdoors, at the best, are an evil to be avoided. Not only are they a menace to the safety of drivers hauling the coal, but they impair the ventilation of the mine by leaking air or being carelessly set open and short-circuiting the current.

Some correspondents have referred to the need of employing a ventilating engineer; but I agree with Oscar H. Jones, *Coal Age*, Sept. 29, p. 495, who states, "The foreman should have the full control of everything pertaining to the ventilation of the mine."

With Mr. Jones, I consider a foreman who is not capable of ventilating a mine properly is unfit for the position he holds. There are, however, things that are more important and essential than the employment of a ventilating engineer, in the securing of good ventilation in a mine.

STATE MINING LAWS SHOULD MAKE MORE SPECIFIC REQUIREMENTS

To my mind, our mining laws are not specific enough in requiring certain of these essential details, which are left to the judgment of the foreman in charge. I would even say that trapdoors should be prohibited in mines, except small doors, built in overcasts and stoppings where necessary, and made of incombustible material.

Again, the law should compel every operator to install a ventilating fan suitably adapted to the size of the mine and the daily tonnage expected. One essential point is the requirement, by

law, that the velocity of the air passing through the last crosscut of a pair of entries shall not be less than 150 ft. per min., and all crosscuts to have an area not less than 50 sq.ft.

If our mining laws contained a few requirements such as these there would be less left to the judgment of the mine foreman, whose duty would then be to see that the law was fulfilled.

Other essential requirements in ventilation are, that all abandoned workings shall be either sealed off with airtight stoppings, or ventilated in a manner to prevent the accumulation of gas in such places. Also, it should be required by law that the circulation shall be so conducted that seventy-five per cent of the air entering the mine will reach the working faces.

Finally, failure to comply with these requirements of the law should be punished by a suitable fine or the withdrawal of the foreman's certificate. In closing, let me say that the desire of many operators for tonnage compels the foreman to adopt methods that are not justified by the ventilating facilities at his command, as he well knows. This is a point in which the law should provide some protection for the foreman.

Aultman, Pa. WILLIAM J. WALKER.

good effect. If this is true, why should not the mixing of fine salt with the material used in tamping a shot exert an extinctive effect on the flame of the burning powder that is projected from the hole when the blast is fired?

This is a question worthy of careful consideration and may well be made a study for investigation by the Federal Bureau of Mines and Experiment Stations in mining districts. Many readers of *Coal Age* may be able to throw light on this matter and offer some practical and helpful suggestions. Let us hear from them.

Two Values for Calorie

French unit, calorie, has two values—The large calorie, kilogram-calorie, most commonly used—The small calorie, gram-calorie, mostly used by chemists.

READING from "Mine Gases and Ventilation" (page 52), the French thermal unit or calorie is defined as follows: "This is the quantity of heat required to raise the temperature of one kilogram of pure distilled water, at maximum density, one degree of the Centigrade scale."

I have been studying Millikan and Gale's First Course in Physics, and find the following definition for the French unit of heat: "A unit of heat is defined as the quantity or amount of heat that is required to raise the temperature of one gram of water through one degree, Centigrade. May I ask which of these values is correct?"

Cambria Co., Pa. STUDENT.

Inquiries Of General Interest

Mixing Salt With the Stemming, in Blasting

Salt Absorbs Moisture—Mixed with Stemming and Thrown Out by the Blast It Would Tend to Keep the Dust Damp—Extinctive Effect of Salt Would Act to Decrease Flame of Shot in Blasting Coal

TALKING, recently, with a superintendent of an Oklahoma mine, I learned that common salt had been used in tamping the holes, in blasting coal in some of the mines. He stated that their coal made much fine dust when blasted, and the suggestion was made that the well-known property of salt to absorb moisture from the air should make it an effective agent for keeping the dust damp, if the salt was mixed with the stemming when tamping the hole.

It was argued that the salt thrown out with the dust, by the force of the blast, would be distributed where it was most needed. The superintendent stated that they had acted on this suggestion and he thought that some good had resulted, though it was difficult to state to what degree the practice was effective in allaying the dust danger in blasting coal.

My understanding is that the absorption of moisture by common salt is largely due to the impurities, such as calcium and magnesium chloride, contained in the salt. There are numerous deliquescent substances that possess the property of abstracting moisture

from the air; namely, calcium chloride, potassium carbonate, zinc chloride, sodium hydroxide and potassium hydroxide.

The question I would like to ask is, Has *Coal Age* or any of its readers known of these substances being used for the purpose mentioned; and, if so, when and where was the experiment tried and with what success?

Chicago, Ill.

ENGINEER.

This is, indeed, an interesting inquiry and we hope it will call forth further information in reference to the alleged practice of salting the stemming of a shot, in blasting coal in dusty mines. The idea is certainly suggestive and good results might reasonably be expected in the efforts being made to allay the dust danger.

In this connection, however, another thought suggests itself, relative to a further benefit that might accrue from the practice of salting the stemming of a shot when blasting coal, in a dusty mine or in a mine generating gas.

As is well known, salt has an extinctive effect on flame. Salt has often been thrown on an incipient fire with

Replying to this inquiry, it should be stated that the value of the French heat unit or calorie is commonly expressed in the definition first given above. It is the quantity of heat that will raise the temperature of one kilogram of pure distilled water, at maximum density, one degree of the Centigrade scale.

Unless otherwise stated, this value is always understood to be that of the calorie. For the sake of convenience, however, chemists have used a value based on a gram of distilled water at maximum density, instead of a kilogram. By way of distinction, this is sometimes called the "gram-calorie," or "small calorie"; while the value in common use is described as the "kilogram-calorie," or "large calorie."

These two values give rise to no confusion, as their use is only relative, the same unit being employed to measure the amount of the substance under investigation. The fact that chemists are dealing with small quantities of substances, measured in grams, explains their use of the gram-calorie, or small calorie. On the other hand, in more general practice the weight of substances under investigation is generally given in kilograms, making it more convenient to use the kilogram-calorie or large calorie, which is the common unit employed in the French system. When the gram or small calorie is used it should be so stated.

Examination Questions Answered

Mine Foremen's and Firebosses' Examination Charleston, W. Va.—1921

QUESTION—*State the chief causes of accidents in this state and the methods you would adopt to prevent same.*

ANSWER—The chief causes of mine accidents are falls of coal and roof at the working face and on roads and traveling ways; careless handling of powder in the preparation of charges for blasting; lack of judgment in placing shots; failure to properly tamp the charge; returning to the face to ascertain the cause of a missfire; firing two or more shots, at the same time, in a close place, or failure to examine for gas before firing; lack of proper safety appliances, refuge holes and separate traveling ways; poor installation of electric wires, failure to safeguard the same and to use proper precaution to avoid contact with live wires; lack of strict regulations to insure the safety of workers, and suitable punishment for any violation of these rules.

The most effective means of preventing accidents from these causes is to make and enforce strict regulations and maintain discipline in the mine. Provide necessary safety appliances and see that all needed supplies of timber are promptly delivered and kept on hand in every working place. Use only permissible powders and employ competent shotfirers to examine, charge and fire all shots that in their judgment are safe. Where safety lamps are required, no open lights should be permitted in the mine. All safety lamps should be properly cleaned, filled and delivered to the men, at the beginning of each shift. Drivers, timbermen and other shifthands or daymen should be equipped with electric cap lamps.

QUESTION—*What are the necessary supplies that should always be on hand, at the mine, for the safe working of the same; and what is your duty if the operating company fails to keep these supplies on hand?*

ANSWER—There should be kept on hand ample supplies of props, cap-pieces and other needed timber, cut to the proper dimensions and ready for use; also, rails, tracking, brattice boards, canvas, nails and tools of all kinds and such extra parts of machines, car-axles and wheels as are liable to be needed to replace those worn or broken. Every mine should be equipped with a full supply of first-aid materials, such as splints, bandages, stretchers, blankets and waterproof coverings.

In case these supplies are not provided and kept on hand by the company it is the duty of the mine foreman to notify the company, in writing, stating what supplies are needed, in accordance with Sec. 39 of the West Virginia Mining Law. A company failing to supply what is needed in the mine for its safe operation, is liable to a fine of from \$50 to \$200, or imprisonment in the County Jail from thirty to ninety days, as the court may decide.

QUESTION—*(a) Do you approve of shooting coal from the solid? (b) State under what conditions you would permit solid shooting to be done.*

ANSWER—(a) Solid shooting is not advisable in the mining of bituminous coal and should only be permitted in the mine, under particular conditions that would make it safe.

(b) The mining law (Sec. 36) authorizes the district mine inspector to prescribe the condition under which solid shooting may be done. These conditions must be determined by the judgment of the mine inspector, after a careful study of the situation. Permission allowing solid shooting, in any particular case, must be given, in writing, by the mine inspector to the foreman in charge.

QUESTION—*What is the limit to the quantity of explosives to be taken inside of the mine, by any one person; and what are the requirements of the law regarding the container for carrying such explosives?*

ANSWER—The law (Sec. 75) forbids any miner or employee to take into the mine a larger quantity of powder, or other explosive, than he may reasonably be expected to use in that shift, such explosives must be carried in a metallic cannister or fiber receptacle, having a capacity not to exceed 5 lb., and carefully closed with an approved top or cover.

QUESTION—*Give reasons why different methods of mining are used, and why one method will not answer for all mines.*

ANSWER—Variations in the depth below the surface, the inclination and thickness of the seam, the hardness of the coal and the nature of the roof and floor make it necessary to employ different methods of mining the coal, choosing the method best adapted to the particular conditions in any given case.

In general, a deep-lying seam, or frail roof and soft bottom will require a less width of opening and larger pil-

lars. While seams of moderate thickness are well adapted to the room-and-pillar system of working, thin coal seams, particularly lying at a considerable depth below the surface, are best mined by the longwall method.

Again, what is known as "bench mining" must often be used in seams of great thickness. The panel system of mining is much used in gassy mines and stope mining must often be employed when the seam is highly inclined. It is obvious from the foregoing that one method of working cannot be used in all mines owing to the varying conditions in those mines.

QUESTION—*If you had a number of men working in a section where fire was discovered in the intake airway, state how you would proceed to rescue the men and protect the lives of all other employees inside.*

ANSWER—This question can only be answered in a general way, without a full knowledge of the situation. A fire in the intake airway leading to a section of the mine where men are working requires prompt action to first notify and withdraw the men, before they are overcome by the smoke and gases produced by the fire. If it is possible to take the men out by any other way, immediate steps should be taken to short-circuit the air, by breaking down a stopping or opening a door inby from the fire. At the same time every effort must be made to get water to the fire, on the intake side. The first consideration always is notifying and withdrawing the men by the safest possible route. Word should also be sent to the men working in other sections of the mine and safety will generally require that they be withdrawn promptly from the mine.

QUESTION—*A workman has ignited a pocket of gas and is severely burned about the face and arms. State how you would rescue him and protect yourself; also, state how you would treat him.*

ANSWER—Remove the victim as quickly as possible to nearby, fresher air, taking care to handle him carefully. Having sent at once for a doctor, carefully loosen the clothing about the chest cutting it from the arms that are burned. As much as possible exclude the air from the burned part and, as quickly as this can be obtained, apply oil or a thin paste of baking soda, flour or starch. Vaseline, olive oil, fresh lard or cream, or an emulsion of boiled oil and lime water are all good. To restore consciousness, in the condition of this patient, the usual methods cannot be wholly employed. Rub the lower limbs upward to assist circulation, and use a fan gently to permit the free access of fresh air, at the same time, holding a sponge or handkerchief moistened with ammonia near the nose, or using smelling salts with caution.

In rescuing the person from under the gas burning in the room, stoop low and move as quietly as possible. Protect the head and shoulders with a coat while so doing.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

MEN are hopeful for 1922 according to the degree in which their optimism, backed by the progress that has been made in economic adjustment, overcomes the disquieting indications in current affairs, according to a review of business conditions issued by the Mechanics & Metals National Bank of the City of New York. "There are those who, placing their faith in a number of specific evidences of improvement which recently have manifested themselves," the review continues, "are distinctly confident of a progressive betterment during the new year. There are others who, reviewing the difficulty of the readjustments of 1921, are inclined to hold their confidence in check until they learn how far the prevailing evidences of improvement will carry. There are still others who, probing the fundamental forces which are responsible for the world's present troubles, are inclined not to be cheerful at all.

"Generally speaking, the spirit of confidence predominates. Recognition that the United States is steadily moving toward economic health underlies much of the hopeful anticipation for the new year, and this is supplemented, in its good effect, by developments of an international nature.

"Looking into the future, it is far from an entirely happy world that is engaging the thoughts and plans of business leaders. Yet of all the signs of the times, perhaps a negative one is the most significant, namely, that it is no longer necessary to outline for thinking people how far economic confusion permeates every phase of modern life, and how difficult and prolonged will be the task of reconstruction.

"Narrowing our views to our immediate local problems, it can fairly be said that in spite of the shrunken export buying and the small purchases from the agricultural sections of the country, the industrial East is maintaining a favorable rate of activity. Prices are not holding firm in every instance, shading having taken place in the hope of inducing purchases. But on the whole, with producers and distributors fairly well liquidated, the situation is all that can be expected."

Steel Plants Speed Up

Steel plant operations are gradually broadening in the Mahoning Valley. The Youngstown Sheet & Tube Co. schedule has been substantially enlarged. Fifty-one of the 113 sheet mills in the Mahoning Valley are under power, as compared with 45 two weeks ago. The A. M. Byers Co., Pittsburgh, is operating its blast furnace at Girard, one skelp mill and 88 puddling furnaces. The Trumbull Steel Co. has increased the number of its active tin mills from 10 to 19. Operations will begin soon at the plant in Canton of the Carnahan Tin Plate & Sheet Co., which has been acquired by the Fallon Tin Plate Co. of Niles. At its Ohio works the Carnegie Steel Co. is operating five of its six blast

furnaces. The Republic Iron & Steel Co. again is operating two merchant bar mills, following a long period of suspension. The Newton Steel Co., which is booked about four weeks ahead, has its 10 hot mills at Newton Falls engaged on sheet stock.

Hundreds of workmen in the Allegheny Valley returned to work Jan. 17, when No. 1 department of the Allegheny Steel Company at Breckenridge resumed operations in full. The men had been idle for more than a year.

The Aetna Standard plant of the United States Steel Corporation at Wheeling, W. Va., has resumed operations in full. Three of the corporation's plants in the Wheeling district are now operating in all departments.

Car Loadings Rebound Sharply

Loading of revenue freight totaled 605,992 cars during the week ended on Jan. 7 compared with 531,034 during the previous week, or an increase of 74,958, according to the American Railway Association. The greatest increase noted over the previous week was in coal, the total being 136,982 cars, or 31,320 more than were loaded during the week ended Dec. 31, but this was 54,251 less than during the corresponding week last year and 72,356 less than the corresponding week in 1920.

Idle freight cars numbered 646,673 on Jan. 8 compared with 618,675 on Jan. 1, or an increase of 27,998.

Reports Building Picking Up

In announcing that they have recently underwritten first mortgage serial bond issues amounting to \$12,485,000, S. W. Straus & Co. comment on the building situation in general as follows: "There is a continued improvement to be noted in underlying conditions of the building industry, and it is expected that activities during the ensuing year will be on a very heavy scale. There is a healthy inquiry for capital for building purposes, particularly for residential improvements, and a large proportion of the outflow of capital for the building industry is being absorbed in financing the construction of these types of structures."

Expect More Paper Business

This year will see no startling demand for paper, but a renewal of business can be expected about Feb. 1, says the monthly business review of *The Paper and Pulp Industry*, a bulletin of the American Paper and Pulp Association. "With a total production of paper of about 5,300,000 tons for the year 1921, as compared with 7,334,600 tons in 1920, the paper industry seems to face a certain increase in production during 1922, as compared with the year of depression just closed," says the bulletin. "Production for the coming year seems certain to exceed 6,000,000 tons, even though many branches of the industry will not be able to operate at capacity."

Rail Equipment Orders Plentiful

Railroad equipment orders announced recently indicate that the railroads are planning to put their properties in shape just as soon as possible for increased traffic. The largest order of the past few weeks was that of the Union Pacific Railroad Company, which announced plans for purchasing \$10,000,000 worth of new equipment to be delivered in the next six months.

Monongalia Miners Make Armed March

UNION mine workers on Scott's Run, Monongalia County, W. Va., made an armed march and demonstration on Jan. 4 against the men at the mine of the Gilbert Davis Coal Co.'s plant, who were thought to be meditating a return to work at a scale below that which the union agreement prescribes. The mine had been closed down for some time, and E. H. Gilbert, the president, denied that the mine would be started on an open-shop basis at the time alleged.

On Jan. 7 a demonstration was staged at the Bunker Hill mine and the workers were induced to leave the workings. At the Almina mine on the Monongahela River between Fairmont and Morgantown a demonstration of a similar kind was made. The Bunker Hill mine has been running as a non-union mine for several months, and the Almina mine has tried to operate several times as an open-shop operation. Sheriff Yost refused to interfere with the march unless formal complaint was made of a specific violation of the law and unless warrants were sworn out against the marchers for some particular offense.

The Grand Jury of Monongalia County has brought indictments against fourteen men for taking part in the demonstration and against ten men for the theft of dynamite, pistol carrying and assault and battery.

The grand jury also returned an indictment against R. M. Williams, described as an organizer of the United Mine Workers, charging complicity in assaults upon non-union miners and the dynamiting of a house owned by the Connellsville Basin Coal Co. It further returned true bills against six other men, growing out of the strike which has nominally been in progress in Monongalia County since 1920.

Pennsylvania Will Collect Anthracite Tax

SAMUEL S. LEWIS, Auditor General of Pennsylvania, will collect the anthracite tax, notwithstanding the fact that the constitutionality of the act of 1921 has been attacked in the Dauphin County Court. All firms, corporations and individuals engaged in the mining and production of anthracite in the state will soon receive from the Auditor General blanks for filing tax returns.

The law imposes a tax of 1½ per cent on the assessed market value of all anthracite mined in the state. The duty of assessing the coal or fixing the tonnage value is placed on superintendents or other officers in charge of mines, washeries or other productive operations, as distinguished from the corporations or firms conducting the business themselves, and it is therefore probable, it was said at the Auditor General's department, that in a number of instances the larger corporations will be required to furnish a series of separate reports representing individually the operations of each of their collieries.

Auditor General Lewis has sent a letter to all operators requesting their co-operation to the end that any embarrassment, incident to the imposition of penalties in the event that the act is held constitutional may be avoided.

Washery operators and persons procuring coal from the Susquehanna, the Lehigh and the Schuylkill rivers and other streams are regarded as falling within the purview of the new law and it is their duty to file reports whether they receive blanks or not. The penalty for non-compliance with the act is a fine of \$500 and imprisonment for one year or more.

Nova Scotia Court of Appeals Suspends Injunction Against Wage Cut

THE board of conciliation appointed by the Canadian Department of Labor to investigate the dispute between the British Empire Steel Corporation and the coal miners is composed of the following: U. E. Gillen, general manager of the Toronto Terminals Railway Co., chairman; Colonel W. E. Thompson, Halifax, representing the corporation, and James Ling, Mayor of New Waterford, N. S., representing the miners.

The injunction issued by the Supreme Court restrain-

ing the British Empire Steel Corporation and constituent companies from reducing the wages of coal miners pending the investigation by the conciliation board has been suspended by the Nova Scotia Court of Appeals. The injunction was issued on the ground that under the Industrial Disputes Act no change can be made in working conditions while conciliation proceedings are in progress. The Court of Appeals holds that as the agreement between the corporation and the unions expired at the end of the year, there is no "existing rate of wages." The corporation will pay the reduced rate until a final judgment on the question has been rendered.

Shipments of Anthracite in December Were Smallest Since 1920 Vacation Strike

SHIPMENTS of anthracite during December, 1921, as reported by the Anthracite Bureau of Information, decreased approximately 1,800,000 tons as compared with the corresponding month of 1920, and of nearly 680,000 tons as compared with November. Shipments last month (4,635,922 gross tons) were the smallest since September, 1920, when the "vacation" strike of the mine workers reduced the shipments to 3,592,954 tons. Total shipments for the year 1921 amounted to 67,617,713 tons against 68,627,125 tons in 1920.

Shipments by initiating carriers were as follows:

	Dec., 1921	Dec., 1920	Nov., 1921
Philadelphia & Reading.....	985,262	1,324,004	1,017,409
Lehigh Valley.....	801,796	1,161,305	913,737
Jersey Central.....	532,597	497,735	512,613
Lackawanna.....	626,377	940,515	814,131
Delaware & Hudson.....	654,987	896,475	756,598
Pennsylvania.....	307,520	457,242	429,638
Erie.....	450,465	675,979	503,488
New York, Ontario & Western.....	107,107	164,557	136,945
Lehigh & New England.....	169,811	318,508	229,455
Totals.....	4,635,922	6,436,320	5,314,014

Railroads Oppose 28 Per Cent Reduction In Rates in Southwest

THE Interstate Commerce Commission is considering proposed reductions of 28.5c. on bituminous coal, lump and slack from points in the Pittsburg (Kan.) district mines in Kansas, Missouri, Oklahoma and Arkansas and mines in the Springfield (Ill.) district to Kansas City. Southwestern roads have protested against the reduction from the Springfield (Ill.) district because the differentials will be interfered with, and the Chicago & Alton R.R. makes the same objection against the reduction from the Southwestern fields, saying that all reductions have been justified if those from the Southwest are given effect. The Southwestern coal operators ask that the reductions from the Southwest be allowed to go into effect and that all others be suspended. Various interveners have contended that the reductions are not justified.

A Warm Year, 1921

ST. LOUIS reports that 1921 was the warmest year on record. This will account in a way for the poor coal business. The mean temperature for the year was about 60 degrees. The highest for the previous 50 years was 58.3 degrees in 1900. The normal annual mean temperature is 56 degrees. The average daily excess over normal for the year was 4.1 degrees. No heat record was broken; the highest of the year was 98 deg. F. on July 13. The lowest was 12 above on Jan. 17. Every month in the year was warmer than normal.

THROUGH A CO-OPERATIVE AGREEMENT with the Pennsylvania Geological Survey, the U. S. Bureau of Mines has exercised general supervision of the sampling of a large number of coal mines in western Pennsylvania and has also analyzed the samples. Under similar agreement with the Sewalls Point Coal Exchange, about 100 mines along the line of the Virginian Ry. have been sampled by engineers under the direction of the bureau.

No Agreement Reached in Georges Creek And Upper Potomac Regions

AFTER three days of parleying in Baltimore, on Jan. 10, 11 and 12, representatives of the operators and miners of District 16, United Mine Workers of America, which comprises the Georges Creek and Upper Potomac fields, failed to reach an agreement on a scale of wages and working conditions to replace the existing wage contract, which expires on April 1. No agreement is likely to be consummated.

One of the demands of the representatives of the miners was for a fixed wage scale covering the period between April 1, 1922, and March 31, 1924. The operators refused to entertain that demand on the ground that changes in market and general economic conditions made it undesirable as well as unfair to enter into such an agreement. This was the question upon which final disagreement came, the conference breaking up soon after this demand had been made and rejected.

In an attempt to negotiate a new contract the operators proposed an agreement from which the provision in the existing agreement confirming the award of the U. S. Bituminous Coal Commission was stricken out. The miners lodged objection to that, asserting that the commission had stipulated that the wages of miners must be maintained on a certain level. The operators took the position that the award of the commission had no such effect and had, moreover, long ago ceased to exist.

Although the miners proposed that the old agreement be adopted they later withdrew that offer. One of the counter propositions made by the operators was that an agreement be entered into under the terms of which fixed wages and hours for the entire district were not to constitute a part of any agreement but that the matter of wages and hours should be left to the miners and operators in various localities. As the miners felt that this would weaken their organization, they declined to agree to it.

Inability of the operators and miners of District 16 to agree upon a new contract or to reach any agreement as to an adjustment of wages leaves about 90 per cent of the mines in Maryland shut down and means that production will be restricted to about 20 per cent of potential capacity unless action is taken by miners and operators independent of the United Mine Workers' organization, as has been done in some cases.

In some quarters the opinion is entertained that, regardless of the wishes of the union, a way will be found to work out an agreement with the mine workers as individuals. It is not believed that the door is closed to further negotiations with the miners' union.

The following rates now in effect for mining coal and for day labor, operators contend, make it out of the question for them to compete with other fields where a lower wage scale is in effect: Pick mining, \$1.31 a ton; drivers and inside day laborers, \$7.42 for an eight-hour day; dumpers, \$6.88; motormen, \$7.42. Production is now restricted to about 600,000 tons per annum as against the normal production of 3,000,000 tons per annum.

Testing Society Committee Rejects Coal Contract with Analytical Provisions

PURCHASE of all coal on a contract form providing specifications based on analysis, a form recently advocated by many purchasing agents, has been considered and rejected by a special committee on coal of the American Society of Testing Materials. This committee has been meeting in New York at regular intervals for several months and has given the subject full consideration from the standpoint of the seller, buyer and testing and combustion engineers.

It is understood that this committee will make a report along these lines to the main committee of the society in Philadelphia next month.

While no formal report has been made by the committee as to its conclusions regarding a form of contract for the

purchase of coal, it is understood that it will recommend that the purchaser determine by actual tests what coals are best suited to his individual requirements and make a contract along those lines, giving analysis of coal desired and stating the mine or mines from which the coal is to be shipped.

If it is desired to have a premium and penalty clause in the contract it is thought it should be based on the ash content of the coal, making the amount of the premium and penalty base, to be determined in each individual case, on the actual cost of coal delivered and the expense of handling the excess ash.

The members of the committee are:

Hubb Bell, sales chemist, U. S. Testing Co., chairman; George H. Bayne, Emerson & Morgan Coal Mining Co., New York, secretary; Andrew B. Crichton, consulting engineer, Johnstown, Pa.; H. S. Fleming, consulting engineer, New York City; L. C. Frey, fuel engineer, Lehigh Coal & Navigation Co., Lansford, Pa.; John McNally, vice-president and fuel engineer, Fuel Service Co., New York City; J. D. Monie, vice-president and sales manager, Johnstown Coal & Coke Co., New York City; Henry M. Payne, consulting engineer, New York City; Alfred D. Thompson, bituminous sales manager, Pattison & Bowns, New York City; F. R. Wadleigh, chief of Coal & Coke Section, Fuel Division, Department of Commerce; Robert Johnson, Hecker-Jones-Jewell Milling Co., New York City; H. L. Ogden, purchasing agent Gas & Electric Utilities, Boston, representing the National Association of Purchasing Agents; H. L. Holstein, chemist, New Jersey Zinc Co., Palmerton, Pa.; J. C. Phillips, supervising engineer, New York Steam Co., New York City; Edwin B. Ricketts, New York Edison Co., New York City, representing the National Electric Light Association; Oscar Texter, consulting engineer and chemist, Cleveland, Ohio, and John Van Brunt, chief engineer, Combustion Engineering Corporation, New York City.

Hultman Asks Massachusetts Dealers to Refuse Shipments of Poor Anthracite

MASSACHUSETTS is getting some bad anthracite, according to State Fuel Administrator E. C. Hultman, who asks dealers to co-operate with him in stopping this influx by refusing poor shipments. The appeal is made in a statement issued Jan. 17 which is accompanied by statistics to show that New England took more anthracite during 1921 than in the better year 1920 and that Massachusetts right now is heavily stocked with almost a million tons of it. Mr. Hultman's declaration about inferior coal follows:

"Anthracite coal which not only fails to conform to sizing specifications but contains such a high percentage of impurities that its heating value is materially reduced is being forced and foisted upon the dealers and subsequently upon the public. This low heating value results in a real cost for fuel much greater than even the present high prices indicate.

"The coal market has now shifted from a sellers' to a buyers' market, and dealers are responsible for their purchases. Therefore, I request the co-operation of all dealers in improving the quality of standard of domestic fuel and conserving our transportation facilities by refusing to accept shipments of poor quality coal."

Mr. Hultman reports that deliveries of anthracite to Massachusetts during the coal year ended March 31, 1921, totaled 5,207,643 tons. Of this, the carry-over was 808,000 tons. Receipts between April 1 and Dec. 31, 1921, were 3,945,553 tons, making stocks and receipts for nine months up to Dec. 31, 1921, total 4,753,582 tons. Stocks of domestic sizes carried into January, 1922, show 934,770 tons as compared with 261,993 tons in January of 1921. Thus Massachusetts is well stocked with anthracite for the time being.

All New England took 103,000 tons more of anthracite during 1921 than the same states did in 1920, as the following table, issued by Administrator Hultman, shows:

RECEIPTS OF ANTHRACITE IN NEW ENGLAND BY CALENDAR YEARS			
(In Net Tons)			
		Per Cent Tide	Per Cent Rail
1916.....	10,715,000	49	51
1917.....	11,680,000	38	62
1918.....	13,621,000	30	70
1919.....	10,578,000	31	69
1920.....	11,255,000	31	69
1921.....	11,358,000	33	67

Reduction in Coal Freights Now Seems Less Likely; Morrow and Cushing Suggest Cuts

BY PAUL WOOTON

Washington Correspondent of Coal Age

WHAT is the Interstate Commerce Commission going to do about freight rates? While many observers present at the rate hearings last week still hope for a general reduction of 15 per cent, it is obvious that the commissioners are not convinced that a reduction would produce sufficient tonnage to maintain the railroads' revenue at a fair figure. Shippers' testimony, especially that of coal men, has all indicated that rail traffic is sufficiently heavy to make the 1921 rates inequitable. But all this evidence was based on October traffic. Railroad business since then tells a different story, so that the commission, with the reports of a whole year before it, charged as it is with the duty of making rates that will guarantee the roads a fair return on invested capital, may hesitate to order reductions until prospects of good business are more definite.

It is generally admitted that the case for coal was ably presented by J. D. A. Morrow, vice-president of the National Coal Association, and George H. Cushing, managing director of the American Wholesale Coal Association. The bulk of Mr. Morrow's testimony was printed last week in *Coal Age* (pp. 145-6) and Mr. Cushing's appears in this article. Mr. Cushing presented statistics to support his contention that railroad operating revenue can be reduced 13.87 per cent without endangering a return of 6 per cent on the value of the roads. Mr. Morrow, pointing out that railroads will pay approximately \$215,000,000 less for fuel this year than they did last year and that their other costs are decreasing, suggested to the commission that if a general rate reduction be made, it should apply to coal first and that 75c. a ton would be a fair reduction.

WAGES ARE FALLING IN NON-UNION FIELDS

Mr. Morrow, supplementing the statements reported in these columns last week, told the commission that mine wages are going down—already have receded to the 1917 level or lower in non-union fields—and that they "must be reduced on April 1 next, although to what extent the National Coal Association cannot attempt to say."

He said that further wage cuts would "result in some lowering" of the price of coal, but mine prices have already been reduced so much to meet non-union competition that coal production the country over is now going on at a loss. He quoted from reports of all the operators reporting to his association—operators who produced 55,460,000 tons during the seven months from April 1 to Oct. 31, 1921—showing that there was an average loss of 2c. a ton among them. He said reports for November and December showed even further losses.

In the questioning which followed Mr. Morrow's address Commissioner Hall held that high rates to tidewater, which Mr. Morrow thought should be reduced \$1, might not have been the main cause for America's loss of foreign markets. He suggested that poor quality of coal cut a figure. Members of the commission also doubted whether Mr. Morrow was right in prophesying a miners' wage reduction after April 1. He replied that in view of the conditions and of the relationships between union and non-union mines it is entirely reasonable to expect such a reduction.

Mr. Morrow declared foreign coal can come into this country right now and compete with the native product because of high rates here. He said Japanese, Australian and even Cardiff coal is selling today in California at a price less than the freight rate on Utah coal shipped to the coast.

Answering another question, Mr. Morrow said the development of water power would reduce bituminous demand temporarily, but that industrial expansion due to cheap power ultimately would increase that demand.

With his testimony Mr. Morrow presented statistical exhibits covering twenty pages. Among other things these exhibits show:

The percentage which cost of fuel and power constitute of the total cost of production in various industries.

Average f.o.b. mine cost of railroad fuel.

Analysis of the present rates per ton-mile earnings, and average distances on coal, in carloads, from the natural sources of supply to all towns with a population of 5,000 or more in the States of Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee.

Former and present rates on bituminous coal from various groups of mines to representative destinations.

Former and present rates on coal, with average distances and rates per ton per mile, from various producing districts to important consuming centers, together with the percentage of advance in these rates.

Former and present rates on coal from mines in Kansas, Arkansas and Oklahoma to representative points in several states.

Former and present rates on coal from various producing fields to representative destinations with percentages of increase.

Subdivision of the dollar paid by a consumer of bituminous coal.

Subdivision of the dollar being received by the bituminous coal operators.

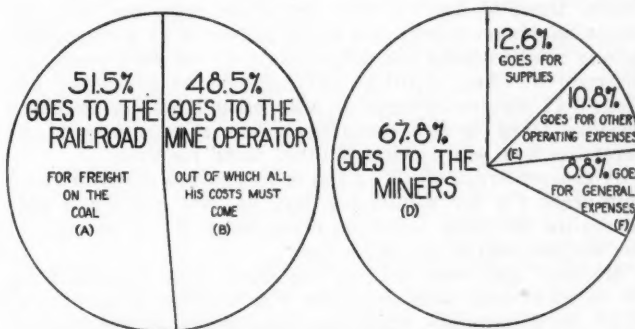
Tonnage, average costs and prices received for bituminous coal by 532 operating companies for the period Jan. 1 to October 31.

Overseas exports of bituminous coal by months in 1921.

Comparison of the relation of increases in freight charges on bituminous coal to the value of the coal, with the same relation shown between freight increases and values of various other commodities.

Mr. Cushing, in his address to the commission, declared the freight rates to big distributing centers average more than \$1 a ton above the 1917 level, that this is higher than is necessary to return a fair revenue to railroads and that the returns even now are larger than is necessary to maintain railroad credit.

Glancing back along the history of bituminous coal and rail relations, he said, coal production has gained more than 10,000,000 tons a year for fifty years—for the last twenty years, 17,500,000 tons a year. Even periods of depression have not checked this growth noticeably except at the moment. The 1921 depression, he said, was the most severe in the history of coal mining, with a shrinkage of 26 per cent in production, and this tonnage must be regained as



WHERE THE MONEY GOES WHICH IS PAID FOR BITUMINOUS COAL IN CARLOAD LOTS

What becomes of the dollar paid by a consumer of bituminous coal who buys direct from the mine operator.

What becomes of the dollar now being received for bituminous coal by the mine operator (C).

(A) Average freight per net ton, \$2.27. From testimony of George M. Shriver, vice-president Baltimore & Ohio R.R., before the Interstate Commerce Commission Jan. 13, 1922.

(B) Average spot price per net ton, f.o.b. mines, mine run basis, \$2.13. From *Coal Age*, Jan. 12, 1922.

(C) Data compiled from reports of members of the National Coal Association for the period April 1-Oct. 31, 1921. The chart shows nothing left for stockholders of bituminous coal-mining companies or for interest paid to bondholders or others and makes no provision for interest on investment, for the reason that the reports show operation at an average loss for the seven months.

(D) Includes all classes of labor at mines.

(E) Includes royalties, depletion, depreciation, insurance and taxes other than federal income and excess profits taxes.

(F) Includes salaries of officers and office employees, legal expense and selling expense.

one of the first visible effects of an industrial revival. He prophesied the gain during the five-year period 1920 to 1925 would be about 25 per cent. This would raise production from 407,000,000 tons, the 1921 figure, to 665,000,000 tons in 1925. This growth is reasonable for the railroads to expect, he said. Since American Railway Association statistics show railroads load a little over three cars of other freight for every car of coal, the roads should have heavy tonnages as soon as coal begins to move.

He filed charts on car loading which indicate, he said, that "bituminous coal tonnage is the mirror which almost perfectly reflects the business of the country. When coal moves abundantly there is an abundant production and shipment of other things. When coal traffic declines the other business of the country decreases proportionately."

To prove his contention that freight rates average more than \$1 above the 1917 level he produced this table:

COMPARISON OF COAL RATES IN 1917 AND 1921 TO PRINCIPAL DISTRIBUTING POINTS

Origin	Destination	Rate in 1917	Rate in 1921	Gain	Per Cent of Gain
Springfield, Ill.	Chicago	\$1.02	\$1.85	\$0.83	81.3
Hooking Valley	Detroit	1.30	2.47	1.17	90
Pittsburgh	Cleveland	1.15	2.055	0.905	78.7
Allegheny Valley	Buffalo	1.10	2.36	1.26	114.5
Clearfield	Albany	1.90	3.60	1.70	89.4
Clearfield	New York	1.60	3.11	1.51	94.4
Clearfield	Philadelphia	1.60	3.18	1.58	98.8
Cumb.-Piedmont	Baltimore	1.75	3.18	1.43	81.7
Hazard-Harlan	Cincinnati	1.00	2.10	1.10	110.0
Springfield, Ill.	St. Louis	0.825	1.435	0.61	73.9
Springfield, Ill.	Omaha	2.30	3.645	1.345	58.4
Bluefield	Hampton Roads	1.40	2.884	1.484	106.0

Assuming \$3 a ton to be a fair average contract price in April, 1917, and \$1.60 today, he pointed out that coal has dropped 46.66 per cent and is still going, while freight has increased 88.16 per cent.

Mr. Cushing then set out to show that unless freight rates are reduced the railroads will increase their coal haulage revenue by \$492,990,000 over that of 1917. This is based on an estimated coal production in 1922 of 500,000,000 tons hauled at \$2.65—the average freight rate in 1921—making a revenue of \$1,325,000,000. In 1917 they handled 551,000,000 tons at \$1.41, thus bringing in \$832,010,000. The difference is the \$492,990,000. If the 1921 rates were allowed to stand and coal production reached 665,000,000 tons, the railroads would get a revenue of \$827,260,000 over 1917, which, he contended, would be manifestly unfair to coal and all other industry.

Mr. Cushing stated that the American Wholesale Coal Association believes rates are unreasonable in that they exceed those of April 6, 1917, by 50 per cent, that they are unreasonable on export coal to the extent of \$1 per ton, that in any readjustment the differentials as between producing districts in effect April 6, 1917, should be preserved and that 1917 service charges on coal should not be increased because there is less demurrage, less reconsignment and diversion and less service of other sorts required.

A gross margin of 15c. a ton is recognized generally as a fair profit for the wholesaler, but, he said, nobody is able to realize anything today on a reconsigned car because of the service charge of 14c. a ton.

He said that with price at the mines now ranging from \$2 to \$2.25 and with contracts outstanding at as low as \$1.50 the bituminous trade has been losing money heavily. Minimum prices to purchasers on low-cost coals must be \$2.15 in carload lots, and high-cost coals, \$2.45, in order that the coal man shall make anything at all.

Facing these conditions the wholesaler, with practically no profit, has one chance to save his narrow margin. He can save the reconsignment service charge by divulging to the mine the name of the ultimate buyer. If he does this the mine can offer the coal direct to that buyer at a price undercutting the wholesaler. The Supreme Court has ruled, he said, that a merchant shall not be forced to divulge the names of his customers.

The "ruinous" demurrage and reconsignment charges, he said, which the coal merchant must pay, if he is to change a shipment from one buyer to another, are often used by the first consignee to compel the merchant to reduce his price.

Touching upon demurrage, Mr. Cushing read figures to indicate the average freight car earns 88c. per day when it

is rolling, but demurrage is charged at \$2 per day for the first four days and \$5 a day thereafter. He said the association is willing to pay \$2, but the \$5 rate is unreasonable.

He then attempted to show what the revenue of railroads would be at the present rates in an average period of activity. Taking 1920 as that average, he pointed out that monthly loadings were 3,693,508 cars. During the last three months of 1920 the new rates were in effect. Mr. Cushing takes railroad earnings for those months and strikes an average which he uses as an average monthly revenue for a year. Had that average been applied to the whole year 1920 the railroads would have earned gross \$6,920,492,484.

From 1910 to 1920 70.49 per cent of gross income was used for operating expenses. He estimated railroads now should operate at 70 per cent. This would be \$4,844,377,730 based on the "reconstructed" normal year's gross revenue just estimated, leaving a net operating revenue for a normal year of \$2,076,147,746. This he insisted is too much. The government in the rate test period allowed the railways only \$906,524,492, and the railroads in their protest asserted that they should have received \$1,113,940,000.

Thus in Mr. Cushing's "reconstructed" normal year they would be receiving \$960,207,746, or 13.87 per cent, above the \$1,113,940,000 which the carriers themselves said would pay them 6 per cent a year on their value. Therefore, he concluded, a shrinkage of 13.87 per cent in revenue can now be made by the railroads.

A. H. Campbell, traffic manager for the International Paper Co., New York, testified that two of his company's plants had been forced to install oil-burning equipment because of the high freight rate on coal. He said that practically all other materials used by his firm had been given rate reductions.

C. P. Hoy, of the Fifth and Ninth Districts Coal Operators Association, stated that coal rates from the Illinois mines are so high that operators in those fields have had to stop trying to place their product in Chicago and the Northwest.

Lower coal rates were requested also by companies handling coal on the Northwest docks, the Associated Industries of Massachusetts, the Indiana Coal Trade Bureau, anthracite coal operators, gas companies of Indianapolis and Providence, Buffalo interests, the Kanawha River Improvement Association, the Koppers Co., Seaboard Byproduct Coke Co.; Minnesota Byproduct Coke Co.; Bethlehem Steel Corporation, Chicago Byproduct Coke Co.; Colorado and New Mexico Coal Operators Association, Illinois Coal Operators Traffic Bureau, Illinois Third Vein Coal Operators, Carnegie Steel Co., Illinois Steel Co., National Tube Co., American Sheet & Tin Plate Co., American Bridge Co. and American Steel & Wire Co.

Wages Cut at One Hundred New River Mines

BY the middle of January about one hundred mines in the New River district of West Virginia, or virtually all the companies in that field, had made an independent working agreement with their employees under the terms of which there is a return to the 1917 wage scale, or a reduction in wages of \$1.40 a day and 10c. a ton in the mining rate, despite the fact that for several years this has been one of the most strongly organized fields in West Virginia.

The refusal of the union to agree to any scaling down of wages, even though it meant work for the miners, was the cause of its loss of prestige in this district, which comprises the larger part of District 29. Many of the locals have returned their charters to district headquarters. The check-off is discontinued and the companies have been relieved of all contract obligations with the United Mine Workers.

The following wages are being paid: pick mining, room-and-pillar, per ton, 59.11c.; machine cutting, 10.71c.; loading, 47.32c.; motor machine runners, \$4.68; brakemen and trip riders, \$4.27; skilled wiremen, \$4.68; tracklayers and timbermen, \$4.55; slate shooters, \$4.39; slatemen, \$4.15; pumpmen, \$4.20; pipemen, \$4.55; all other inside labor, \$4.10. The outside day-wage scale is as follows: Dumpers, \$4.15; top tippelmen, \$4.08; trimmers, \$4.; drum runners, \$4.60; cleaners and droppers, \$4.; blacksmiths, \$5.; car repairmen, \$4.56; greasers and couplers, \$4.

Anthracite Convention Calls for Strike on April 1 if 20-Per Cent Wage Increase Is Not Granted

A TWO-YEAR contract; a 20-per cent increase in tonnage rates; a flat increase of a dollar a day for day men; a restoration of the old differentials in cents per day existing before the award of the Anthracite Coal Commission; payment for pillar work at rates not less than that paid for mining coal on the solid; uniformity of rates between collieries for occupations of like character; a uniform eight-hour day; time and a half for overtime and double time for Sundays and holidays; the check-off; all dead work on the same daily rate; all miners on any such work being paid equally; payment for all placing of sheet iron, props, timber, forepoling, extra shoveling and cribbing; consideration rates for miners not working at their regular work for lack of supplies; equity and not precedent as a basis for settling rate disputes; 17c. per inch for all refuse up to 10 ft. wide and proportional increase for all greater widths; payment by the short ton; no dockage; free jackhammers where needed; consideration rate to be made equal to average wage earnings of miners; mine carpenters and other mechanics to get wages equal to local rates and not less than 90c. per hour; adoption of seniority rule in laying off men and rehiring them; powder delivered at working place; short-hour running to be penalized by readjustment of wages and lowering of coal and rent charges were among the demands made by the convention of the mine workers of the three anthracite districts that met at Shamokin, Pa., Jan. 17 and adjourned Jan. 21. If an agreement is not reached by April 1, an immediate suspension of work is ordered. These demands in aggregate will much exceed a 20-per cent increase in the cost of producing coal.

LEWIS COMPARES UNION AND NON-UNION CONDITIONS

With Thomas Kennedy, president of District No. 7, presiding, the meeting was called to order at 10 a.m. on Jan. 17 in the Family Theater, Shamokin, 381 delegates being in attendance. John L. Lewis, international president of the United Mine Workers, being introduced as permanent chairman, made an address in which he contrasted the conditions of the unionized anthracite mines with those in the Pocahontas region of the Virginias, the Alabama regions, the Big Sandy field of Kentucky and other non-union areas. In the non-union fields the men live in unincorporated towns owned by the coal corporations. They had, he said, no halls, no churches and sometimes no schools. A man who joins the union is discharged and evicted and "the only legal authority is the coal company, which enforces its decrees by armed guards." He declared that these conditions were a disgrace to American ideals and could be brought before the American public only through the United Mine Workers of America.

"The anthracite region," said Mr. Lewis, "is the one bright spot in the country from the standpoint of employment. The bituminous industry is in a deplorable condition. Though the potential production of the bituminous coal areas is 800,000,000 tons a year, in 1921 their output was only 407,000,000 tons, representing an average proportion of unemployment of 50 per cent. The production of 1921 was practically that of 1911, when the output was 405,000,000 tons.

"Surely such a deplorable condition makes it necessary to spread over the output a tremendous overhead cost and loads on the American public millions of dollars of expense. It clearly demonstrates the need for the working out of some manner of regulation by which coal may be produced more regularly and men may be given an opportunity to work more steadily. Congress must plan some way to protect capital, the public and the men engaged in the industry in a manner impossible under present conditions.

"More than 200,000 men are out of work, some work a day in a month and others one or two days a week. Some men have not worked a single day since 1920, yet they and their families must eat. If they are permitted to work

only 150 days a year they must, nevertheless, earn enough to enable them to eat 365 days.

"The talk of reducing the wages of miners is idle. The great minds of our nation must devise a new method which will correct the conditions in the soft-coal regions. Though anthracite mine workers have more working days than those in the bituminous regions, they are compelled to work harder in proportion to their pay and are entitled to better conditions and wage adjustments.

"It makes no difference to the anthracite mine workers that the men in other industries have had their wages reduced. We do not propose to have our standard of living lowered because of the working conditions in non-union fields. We shall oppose the application of the non-union yardstick to our standards of living.

"Mine workers never have been paid in a manner commensurate with their hard labor and hazardous employment. For a long, long time they have been regarded too much as laborers. The Anthracite Commission did not award them a wage commensurate with the cost of living. The award was made with the understanding that the living costs would be reduced, the commission believing that it had made a scale in accord with that anticipated decline, but the lowering of the cost of living has not been as great as in the assumption on which the award was based. To accept reductions here because of wage cuts in the non-union fields would result in lower standards of living, which would add to the problems of the worker's life.

"The mine worker is not responsible for the price of coal. His wages are relatively small compared with the price the public must pay. A friend told me in Philadelphia that he paid \$14.75 for a ton of nut bituminous coal, yet the miner did not get over \$1 for mining it and the cost at the mine did not exceed \$1.75.

DENIES DESIRE OF MINERS TO PRECIPITATE STRIKE

"The mine workers do not desire any cessation of work after April 1. They expect the operators to meet them and arrange a contract for the ensuing contract period, and if such a contract cannot be made in this conference which the United Mine Workers of America request, the mine workers will not be at fault."

At the close of Mr. Lewis' address the convention adjourned till 2 p.m., when an unimportant session was held, committees being appointed and the roll of delegates being called. The next morning John Brophy, chairman of the Nationalization Committee and president of the central Pennsylvania district, addressed the convention, declaring among other things that the operators were circulating vicious propaganda declaring that the mine worker is responsible for the high price of coal, depicting the toiler in the mine as a hold-up man, the enemy of public welfare and public interest, this being done to distract the public so that it will not inquire too closely into the operator's vices.

A reduction in wages, he said, was no cure for the financial depression, for in the steel industry although wages have been so greatly reduced that they will no longer sustain life, the plants as a whole are operating only one-third of full time.

According to Mr. Brophy the operator, wasteful, both in his mining and in his marketing methods, is responsible for the high price of coal. He is also prodigal of human life. Although more men are employed in Great Britain than in the United States only half as many lives are lost in the industry of that country.

Mr. Brophy alleged that no one knows the value of the coal properties of the country or how much water is concealed in the stock issued by coal companies.

Christopher Golden, president of District No. 9, with headquarters at Shamokin, followed Mr. Brophy, arguing that the price of coal was regulated by a coal operators' union and that every mine in the anthracite region was getting a

fair profit and 90 per cent of them one that was more than fair. The public should get cheaper coal, but to attain that end it was not necessary to reduce the wages of the mine workers, and that fact the union was prepared at any time to prove. The owners of the land were reaping large royalties. In the mines of the ninth district some were as much as \$2.75 per ton. With such royalties why wonder that anthracite is selling at so high a price? He alleged that coal produced in his district at \$4.20 per ton is selling at points to which it is hauled 20 miles by train at \$15. The operators were anxious to avoid an investigation, and in 1920 were willing to pay any increase demanded if by so doing they could avoid an inquiry.

President Harding, said Mr. Golden, says we must "get back to normalcy." Big business interests interpret that statement to mean that we must return to the low wages and high profits of 1916. Only one great labor organization exists that has not been broken by the big interests, and that is the United Mine Workers of America. Other speeches of less importance were delivered at the morning session. As the resolutions committee was not ready to report, the convention adjourned till 9.30 a.m. on Thursday, Jan. 19.

When the sessions resumed, the resolutions committee was still not ready to report, and J. H. Maurer, president of the State Federation of Labor, made an address, being followed by Phillip Murray, vice-president of the United Mine Workers, who in an eloquent address congratulated the mine workers on their splendid co-operation in the wage negotiations before the Anthracite Commission and on the way in which they had accepted the decision. Any industrial turmoil that may follow the failure to make a new agreement will not be chargeable to the mine workers. They are desirous of adhering to their old-time policy of avoiding industrial strife.

Wage reductions, said Mr. Murray, will not result in a renewal of industrial activity. In Alabama wages have been reduced to \$1.80 for a nine-hour day, but where this wage has been established the men are not working any more stead-

ily than they are where the union is so strongly entrenched that wages have not been lowered. The employers posted notices at the mine mouths promising steady work if the wage cuts were accepted, but no such steady operation resulted. The same is true in District 19 of Tennessee, where the wage rate was reduced to \$3.44 per day and similar promises were made. The average working time since the cut went into operation has been one and one-half to two days per week. The union is determined not to allow wages to be lowered, for at their present level they would be insufficient to enable the men to receive a proper living even should they obtain steady work.

Difficulty has been experienced in bringing about a conference in the Central Competitive Field. In refusing to meet the mine workers the operators have violated the terms of their agreement. In Mr. Murray's opinion the operators were holding off for fear that legislation now before the Senate of the United States will set up a coal board like that which regulates railroad wages.

The Kenyon bill, said Mr. Murray, would try to prevent representatives of the mine workers from negotiating another wage agreement and would place labor in the same category as a dozen of eggs or a bushel of potatoes. Such compulsory arbitration would restrict the rights and liberties of trades unions and the convention should go on record by passing a resolution opposing the bill. The union is opposed to the so-called "American" plan of "open shop." It means that no union man would be able to obtain work. The erection of the national wage board is an attempt by legislation to establish such a method of working. Will an operator sit down, said Mr. Murray, and earnestly try to negotiate an agreement when he can "pass the buck" to a labor board?

Referring to the internal troubles of the International Union Mr. Murray said that the union was founded on collective bargaining and on the duty of honorably carrying out the contractual obligations thus resulting. Direct action which fails to recognize the force of contracts is suicidal. Though not believing in the Industrial Relations

Anthracite Miners' Nineteen Demands, All of Which Will Increase Production Cost

1. We demand that the next contract be for a period not exceeding two years and that the making of individual agreements and contracts in the mining of coal shall be prohibited and where mechanical loading is done the committee and company officials shall have authority to establish proper rates.

2. We demand that the contract wage scale be increased 20 per cent and that all day men be granted an increase of \$1 per day and further that the differential in cents per day existing between classifications of labor previous to the award of the U. S. Anthracite Coal Commission shall be restored and that the rates applied in solid mining shall be the minimum rate on pillar work or second mining.

3. In conformity with the thought expressed in the award of the commission we demand that a uniform wage scale be established so that the various occupations of like character at the several collieries shall command the same rate of wages.

4. We demand that the provisions of the eight-hour day clause in the present agreement shall be applied to all persons working in or around the anthracite collieries coming under the jurisdiction of the U. M. W. of A. regardless of the occupations and that in the bringing of these employees under the eight-hour day their basis shall be arrived at in the same manner as the basis was arrived at in the case of pumpmen and engineers plus the increase demanded in Section 2 of this document, and further that inside day laborers shall work on the basis of eight hours underground.

5. We demand time and half time for all overtime and double time for Sunday and holiday work.

6. We demand that the next contract made between the representatives of the anthracite operators and the United Mine Workers of America shall contain a standard check-off provision.

7. We demand that all dead work shall be paid for on a uniform consideration basis and that where more than one

miner is employed they shall all receive the same rate.

8. We demand payment for all sheet iron props, timber, forepoling, extra and abnormal shoveling and cribbing and that where miners are prevented from working on account of lack of supplies they be accorded the opportunity of making a shift at some other work at the consideration rate.

9. We demand in the settlement of grievances that the aggrieved parties shall have the right to demand settlement upon a basis of equity and if such equity settlement is requested the conditions of 1902 shall not enter into or prejudice the case.

10. We demand that a uniform rate of 17c. per inch be paid for all refuse in all kinds of mining up to 10 ft. wide and a proportional rate be applied for over 10 ft., with the understanding that this is to be a minimum rate, not affecting higher rates that exist.

11. We demand that where coal is paid for by the car this method shall be changed and payment shall be made on the legal ton basis of 2,000 lb., and that dockage shall be eliminated.

12. We demand that where jackhammers are necessary and of advantage in the work they be furnished free of charge to miner or miners, including the power necessary to operate the machine.

13. We demand a more liberal and satisfactory clause in the agreement covering the question of miners who encounter abnormal conditions in their working places and that to correct this situation the following quotation: "Unless otherwise directed by the foreman," shall be stricken from the agreement covering this particular subject and that the consideration rate at each colliery should be equivalent to the average daily earnings of contract miners under normal conditions.

14. We demand that the wage schedules be brought up to date, containing all new rates and occupations, and that copies be supplied the committees and filed with the Board of Conciliation.

15. We demand that carpenters and other tradesmen be paid the recognized standard rates existing in the region, which rate should not be less than 90c. per hour and which trade rate should be paid to all those who have served four years at their particular trade.

16. We demand that seniority shall apply when, owing to retrenchment, men are laid off. The same rule shall hold when men are rehired.

17. We demand that employees of stripping contractors be brought under the general agreement on their present basis of wages and conditions plus the increase demanded in Section 2 hereof.

18. We demand that powder be delivered by the company to the miners at their working places, or as convenient as possible to the working place and in a safe and careful manner.

19. We demand that full eight-hour opportunity be given to employees at collieries which have been working as a general rule on a six- and seven-hour-day schedule and that where eight-hour opportunity is denied to those employees their wages shall be readjusted—this demand is based upon normal working conditions and does not contemplate the inclusion of accidents.

We recommend that our scale committee use every effort to have the operators agree to some provision in the agreement regarding the price of coal and rent to be charged the employees.

The committee recommends that the scale committee to negotiate the contract shall be composed of the officers, the executive board members of the three districts, together with the resident International officers and three mine workers from each district affected, the district president to select the three mine workers in each district, subject to the approval of the Executive Board.

We further recommend that the scale committee be instructed to perfect arrangements providing for a suspension of mining on April 1, 1922, in the event that no satisfactory agreement has been arrived at as of that date.

Court of Kansas, the International officials believe it should be fought in a fair and legal manner. They are seeking its repeal or to have its provisions declared unconstitutional and are doing this in a fair and legal manner and not by direct action. The ex-officials of the Kansas district have, however, called a strike where the union and the operator have no grievance; thus they are not honorably carrying out their contractual obligations. After an adjournment till 2 p.m. the convention listened to an address by W. D. Ryan, a former official of the union and now a member of the Bureau of Mines. At length the resolutions committee reported. Among the resolutions presented Nos. 1, 2, 6 and 7 were notable. A recitation of their terms follows:

Resolution No. 1 declares that whereas members often violate contracts by striking without even presenting grievances to excuse such action, and whereas this violation of the contract by union members if not retrained sometimes establishes precedents that later cause confusion and trouble. Therefore be it resolved that any local union which discovers a member violating the provisions of the agreement, without having taken the proper steps to have his rights protected, should be charged by the local union with an offense against the organization and be fined or otherwise punished to a degree in keeping with the gravity of the offense.

Resolution No. 2 recommends that the legislative committee try to have introduced before the Legislature in Harrisburg rent laws similar to those in force in the State of New York. Resolution No. 6 endorses the Kansas program of the International officials.

Resolution No. 7 declares that the convention is in no wise opposed to any measure providing for the collecting of all the facts relating to the mining industry but rather welcomes such action, but that it most earnestly protests including in such bills any limitation of the miners' right to strike or any provision for compulsory arbitration.

After the approval of the resolutions Secretary-Treasurer Green addressed the convention and the meeting adjourned. On the next day, Friday, Jan. 20, the wage scale committee presented its demands. These were adopted and may be found in a box accompanying this article. The only change which the convention made in the original demands was to add the last clause in the fourth demand providing "that inside day laborers shall work on the basis of eight hours underground." The convention ended at 10 p.m.

Coleman-Weaver Controversy Settled

IT is understood that a settlement of the long-drawn out controversy between the Coleman and Weaver coal interests in Pennsylvania took place recently. The Coleman faction formerly operated the mines of the Nanty-Glo Coal Mining Co., while the Weaver interests operated the Colver Mine as the Edensburg Coal Co. and the Revloc property as the Monroe Coal Mining Co. Under the new arrangement Mr. Coleman obtains the Colver mine and the operations at Revloc and Nanty-Glo pass to the control of Mr. Weaver. It is reported that Mr. Coleman will have his own sales organization to handle the output of the Colver operation.

ARTHUR S. LEAROYD becomes associated with the sales organization of Thorne, Neale & Co., Inc., effective Feb. 1, 1922, with jurisdiction over New York and New England territory. His offices will be in New York. The vacancy in the sales department caused by the death of Charles F. Randolph, several months ago, is thus filled. Mr. Learoyd retires from the position of vice-president of the Lehigh Coal & Navigation Co. to take up his new connection. He was formerly a railroad man and was general freight agent of the D. L. & W. R.R. for several years prior to the war. In 1918 he became director of the Bureau of Anthracite of the U. S. Fuel Administration and later was on the anthracite distribution committee, with offices in Philadelphia.

PENDING INVESTIGATION BY GOVERNMENT AGENTS of conditions existing among coal miners in the West Virginia fields, officials of the New River Coal Co. and the New River Coal Operators Association have postponed the contemplated eviction of unemployed miners from the company houses.

Federal Trade Commission Made Coal-Cost Inquiry on Own Initiative

ADMISSION that the Federal Trade Commission instituted its coal-cost production statistical inquiry at its own suggestion rather than on the direction of the President or Congress, which may have an important bearing on decision of the authority of the commission to require such cost data in pending court cases, was made before the House Committee on Appropriations by Chairman Gaskill. He was before the committee explaining appropriations for the coming year, the subject coming up on questions of the committee. Representative Griffin, of New York, observed that it appeared to him that production-cost investigations were being duplicated in that they were being conducted by three government agencies, the Federal Trade Commission, the Department of Commerce and the Tariff Commission.

Chairman Gaskill said these investigations were different from those conducted by the Federal Trade Commission, and stated that the commission did not institute economic cost studies except on order of the President or Congress. He then admitted that the proposal to determine production costs in coal were instituted by the commission on its own initiative, it having been suggested to the House Appropriations Committee by a member of the commission, and authorized by that body in an appropriation bill during the war.

Navy Receives Many Bids, Ranging Widely, On Coal for Great Lakes Station

A LARGE number of companies have submitted bids to the Navy Department on furnishing coal for the Great Lakes Training Station at Chicago. The bidders are: C. B. Blake & Co., Cincinnati, \$2.24 per ton, f.o.b. mines; also \$1.55; Walter Bledsoe & Co., Terre Haute, Ind., \$2.50; Boehmer Coal Co., St. Louis, \$3.07; D. C. Campbell Coal Co., Knoxville, \$2.52; Crerar Clinch & Co., Chicago, \$2.80; Coalfield Fuel Co., Boncar, W. Va.; \$1.68; Davis Coal & Coke Co., Baltimore, \$2.69; Elkhorn City Fuel Co., Johnson City, Tenn., \$1.02 and \$1.05; Ender Coal & Coke Co., Chicago, \$2.78; Hedstrom-Schenck Coal Co., Chicago, \$2.64; George A. Emos Coal Co., Cleveland, \$2.64; Lake & Export Coal Sales Corporation of Illinois, Chicago, \$2.09; Morgantown, W. Va., Coal Co., \$2; O'Gara Coal Co., Chicago, \$3.35; Old Ben Coal Corporation, Chicago, \$3.24; Peabody Coal Co., Chicago, \$2.80; Roberts Coal Co., \$2.23; Manganon Coal Co., Springfield, Ill., \$2.46; Sterling Midland Coal Co., Chicago, \$2.63; Stoptlmeyer Coal Co., Hathaway, W. Va., \$1.90, and West Kentucky Coal Co., Paducah, \$2.24.

Quiz Jobbers and Retailers on Coal Prices

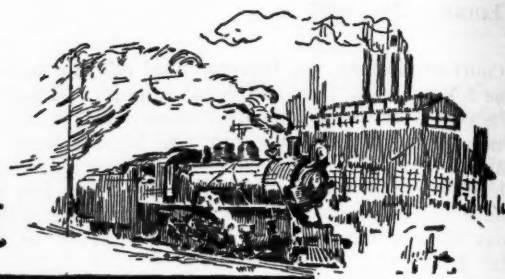
AGENTS of the Department of Justice are asking wholesale and retail anthracite and bituminous coal dealers for information as to coal prices, according to the American Wholesale Coal Association. This is understood to be part of the program of the department in its investigation as to the reasonableness of fuel and other prices. According to the coal association some of its members have been called on by representatives of the Department of Justice for information as to coal prices, being furnished with a blank form on which the information was to be given. The questionnaire covered various grades of coal handled by the dealer, the prices paid by him and the prices at which sold to his consumer. The association says that all war measures which seemed to allow these invasions of private rights have been repealed.

Columbus Awards Municipal Coal Contract

THE Columbus (Ohio) Board of Purchase has awarded the contract to supply 6,500 tons of Hocking nut, pea and slack to the municipal lighting plant; 4,000 tons of Hocking nut, pea and slack to the Scioto River pumping station and 1,500 tons of Hocking nut, pea and slack to the garbage reduction plant to the Sunday Creek Coal Co., at \$1.45 f.o.b. mines. This was the low bid when proposals were opened Jan. 11 by the board.



Production and the Market



Weekly Review

JANUARY sales of bituminous coal have failed to come up to anticipations. While the tonnage moved has exceeded the December business, the new year has not yet brought the volume of orders that was expected to follow the removal of the freight tax and other deterrent factors.

There is no doubt, however, that the coal industry will enjoy better times between now and April 1. This is indicated by a heavier line of inquiry. There is not the least indication that there will be any rush for coal, but the strike talk and the growing certainty of a tie-up are causing buyers to ask for prices and the possibility of prompt shipment.

Purchasing agents are on the anxious seat. Their argument that lowered freight rates are likely to come tends to restrict buying, while the impending miners' wage controversy prompts the securing of an adequate reserve. Labor developments in the immediate future will tell whether or not buyers are to throw their price views into the discard and insure their requirements over the period when trouble may be expected.

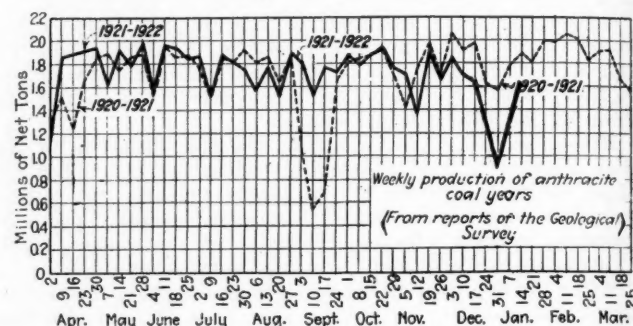
LARGER OUTPUT ABSORBED; FEWER DISTRESS PRICES

Any impetus given the spot market by this strike talk will be only temporary. Coal sellers as a rule are not crying "wolf," but are permitting the buyer to figure out the situation for himself. Industrial improvement is continuing, but very slowly, and it is realized that a return to a healthy market will be equally slow. The industrial situation is difficult to analyze. There are signs of betterment in some lines, which are offset by declines in others, but the aggregate result is a slight upward trend.

A better line of domestic buying has made inroads on dealers' stocks. The increased movement of lump from the mine has eased the screenings market. The average retailer, however, is not reordering heavily and it is apparent that he will go into the new coal year with

yard supplies as light as possible, in order to start next season's business on the lower-cost basis which is sure to result from the new wage agreements.

The Tidewater situation is quiet. Dumpings at the Roads increased last week, New England and bunker markets absorbing the heavier tonnage. Pier accumulations are heavier, following the resumption of mining in the Southern fields, where wage cuts have made lower prices possible.

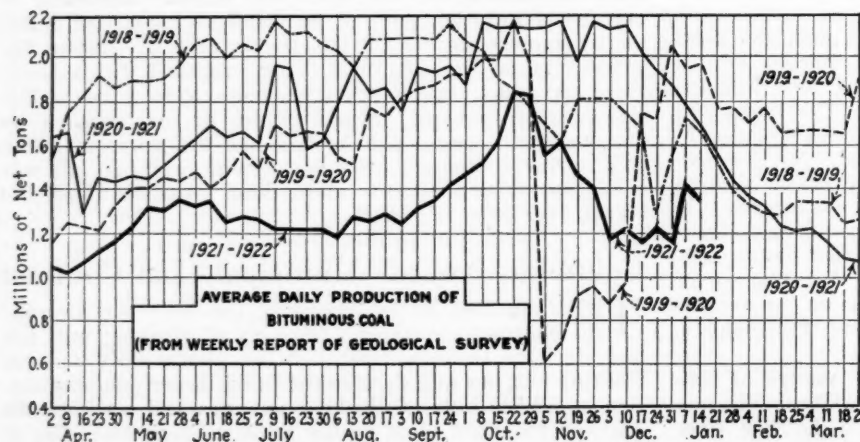


Anthracite is in better call. This has resulted in heavier operations, although the market is too sensitive to permit any increase in prices for the independent domestic sizes. Steam coals are moving more readily and prices are now in line with company schedules.

BITUMINOUS

Production during the week ended Jan. 14—a full-time week—was 8,268,000 net tons, according to the Geological Survey. This is a larger output than for any week since late in November and production is now back on a level with September, before the impending railroad strike bolstered the demand. Loadings on the first two days of last week—Jan. 16-17—exceeded those of the previous week by 930 cars.

Current production is testing out the extent of the increase in industrial requirements. The recent subnormal output was caused by the low rate of consumption, which in 1921 was 76 per cent of 1920. On Nov. 1, 1921, con-



Estimates of Production (Net Tons)

BITUMINOUS COAL			
Week Ended:	1921-1922	1920-1921	
Dec. 31.....	5,986,000	9,686,000	
Jan. 7 (b).....	7,450,000	9,633,000	
Jan. 14 (a).....	8,268,000	10,763,000	
Daily average.....	1,378,000	1,794,000	
Coal year.....	322,270,000	440,695,000	
Daily aver. coal year.	1,334,000	1,816,000	
ANTHRACITE			
Dec. 31.....	862,000	1,641,000	
Jan. 7 (b).....	1,242,000	1,597,000	
Jan. 14 (a).....	1,643,000	1,895,000	
COKE			
	1922	1921	
Jan. 7 (b).....	108,000	266,000	
Jan. 14 (a).....	118,000	266,000	
Calendar year.....	226,000	537,000	

(a) Subject to revision. (b) Revised from last report

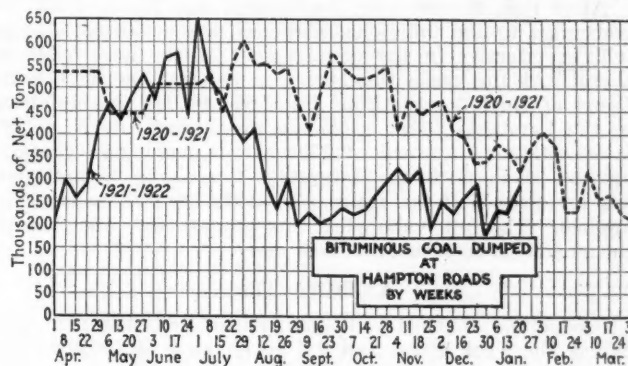
sumers' stocks were 25 per cent below the maximum recorded during the war. Since then production has been less than consumption and consumers have drawn on their stocks. At present production is barely equal to consumption.

Railroads are buying more freely. Last week the New York, New Haven & Hartford signed a contract for 500,000 tons, part Greensburg and part Fairmont. The prices are understood to be \$1.80 and \$1.85 respectively. Most roads are in the spot market, however, as the contract situation is too uncertain.

The principal domestic market—the Middle West—has been stimulated by lower temperatures and the liquidation of retail stocks presages a better movement from the mines. This has been anticipated somewhat by a flood of low-priced Eastern coal. As a result, southern Illinois producers have been forced to put quotations down a peg.

The all-rail movement to New England increased slightly during the week ended Jan. 14. There were 2,233 cars forwarded, as compared with 1,953 the week preceding. Railroad demands were lower and although central Pennsylvania coal is striving hard to compete it is confined to limits well removed from the Tidewater zone, an area that now covers much more than one half of the whole New England section. Large reserves are still characteristic of this territory and this precludes much additional buying action as the result of any strike possibilities.

Hampton Roads shippers are in better shape and there is less disposition to force coal on coastwise customers, but sales are made on an exceedingly close basis. Total dumpings during the week ended Jan. 19 were 266,638



net tons, as compared with 236,113 tons for the previous week.

The Lamberts Point Coal Exchange in operation at the N. & W. Piers at Lamberts Point for eighteen months, will cease to function Feb. 15, according to notices which have been forwarded to its members. The withdrawal of

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern						Market Quoted		Dec. 26 1921				Jan. 9 1922				Jan. 16 1922				Jan. 23 1922†							
Poehontas lump.....	Columbus....	\$3.55	\$3.40	\$3.45	<i>\$3.25@</i> <i>\$3.35</i>	Hooking screenings.....	Columbus....	\$1.20	\$1.45	\$1.50	<i>\$1.15@</i> <i>\$1.25</i>	Pitts. No. 8 lump.....	Cleveland....	3.00	2.85	3.50	<i>2.75@</i> <i>3.25</i>	Pitts. No. 8 mine run.....	Cleveland....	1.95	2.00	2.10	<i>1.85@</i> <i>1.95</i>				
Poehontas mine run.....	Columbus....	2.15	2.15	2.15	<i>2.00@</i> <i>2.25</i>	Pitts. No. 8 screenings.....	Cleveland....	1.70	1.90	1.95	<i>1.65@</i> <i>1.70</i>	M'idwest															
Poehontas screenings.....	Columbus....	1.65	1.50	1.50	<i>1.40@</i> <i>1.65</i>	Franklin, Ill. lump.....	Chicago....	3.65	3.80	3.50	3.25@ <i>4.05</i>	Franklin, Ill. mine run.....	Chicago....	2.90	2.90	2.80	<i>2.25@</i> <i>2.50</i>	Franklin, Ill. screenings.....	Chicago....	2.10	2.00	2.00	1.85@ <i>2.25</i>				
Poehontas lump.....	Chicago....	3.10	3.10	3.10	<i>2.50@</i> <i>3.25</i>	Central, Ill. lump.....	Chicago....	3.10	3.10	3.10	<i>2.75@</i> <i>3.25</i>	Central, Ill. mine run.....	Chicago....	2.50	2.50	2.50	<i>2.25@</i> <i>2.50</i>	Central, Ill. screenings.....	Chicago....	2.00	1.80	1.80	<i>1.65@</i> <i>1.80</i>				
Poehontas mine run.....	Chicago....	2.40	2.50	2.50	<i>1.85@</i> <i>2.50</i>	Ind. 4th Vein lump.....	Chicago....	3.35	3.35	3.35	<i>3.00@</i> <i>3.50</i>	Ind. 4th Vein mine run.....	Chicago....	2.70	2.55	2.55	<i>2.40@</i> <i>2.65</i>	Ind. 4th Vein screenings.....	Chicago....	1.75	2.10	2.10	<i>1.75@</i> <i>2.00</i>				
Poehontas lump.....	Cincinnati....	3.25	3.00	3.00	<i>2.75@</i> <i>3.00</i>	Ind. 5th Vein lump.....	Chicago....	2.95	2.95	2.95	<i>2.60@</i> <i>3.25</i>	Ind. 5th Vein mine run.....	Chicago....	2.45	2.25	2.25	<i>2.00@</i> <i>2.40</i>	Ind. 5th Vein screenings.....	Chicago....	1.80	1.65	1.65	<i>1.50@</i> <i>1.85</i>				
Poehontas mine run.....	Cincinnati....	2.10	1.90	1.90	<i>1.85@</i> <i>2.00</i>	Standard lump.....	St. Louis....	2.80	2.60	2.75	<i>2.50@</i> <i>3.00</i>	Standard mine run.....	St. Louis....	1.90	1.85	1.90	1.85@ <i>2.00</i>	Standard screenings.....	St. Louis....	1.40	1.45	1.35	<i>1.25@</i> <i>1.50</i>				
Poehontas screenings.....	Cincinnati....	1.65	1.25	1.30	1.25@ <i>1.50</i>	West. Ky. lump.....	Louisville....	2.75	2.85	2.75	<i>2.40@</i> <i>2.75</i>	West. Ky. mine run.....	Louisville....	1.75	1.90	1.75	1.60@ <i>2.00</i>	West. Ky. screenings.....	Louisville....	1.85	1.25	1.25	<i>0.75@</i> <i>1.35</i>				
*Smokeless mine run.....	Boston....	4.55	4.70	4.80	<i>4.65@</i> <i>4.75</i>	Standard mine run.....	St. Louis....	1.90	1.85	1.90	<i>1.85@</i> <i>2.00</i>	South and Southwest															
Clearfield mine run.....	Boston....	2.05	2.05	2.05	<i>1.65@</i> <i>2.25</i>	Standard screenings.....	St. Louis....	1.40	1.45	1.35	<i>1.25@</i> <i>1.50</i>	Big Seam lump.....	Birmingham....	3.65	3.35	2.75	<i>2.50@</i> <i>3.00</i>	Big Seam mine run.....	Birmingham....	2.10	2.10	2.10	<i>1.90@</i> <i>2.30</i>				
Cambria mine run.....	Boston....	2.50	2.50	2.45	<i>2.20@</i> <i>2.70</i>	West. Ky. lump.....	Louisville....	2.75	2.85	2.75	<i>2.40@</i> <i>2.75</i>	Big Seam (washed).....	Birmingham....	2.15	2.15	2.15	<i>2.00@</i> <i>2.30</i>	S. E. Ky. lump.....	Louisville....	2.85	3.10	2.85	<i>2.65@</i> <i>2.75</i>				
Somerset mine run.....	Boston....	1.80	1.80	1.80	<i>1.60@</i> <i>2.00</i>	West. Ky. mine run.....	Louisville....	1.75	1.90	1.75	<i>1.60@</i> <i>2.00</i>	S. E. Ky. mine run.....	Louisville....	1.50	1.65	1.55	<i>1.50@</i> <i>1.65</i>	S. E. Ky. screenings.....	Louisville....	1.45	1.35	1.25	<i>1.25</i>				
Pool 1 (Navy Standard)...	New York....	3.05	3.15	3.00	2.85@ <i>3.50</i>	West. Ky. screenings.....	Louisville....	1.85	1.25	1.25	<i>0.75@</i> <i>1.35</i>	S. E. Ky. lump.....	Cincinnati....	3.15	2.85	2.55	2.50@ <i>2.75</i>	S. E. Ky. mine run.....	Cincinnati....	1.30	1.40	1.35	1.25@ <i>1.60</i>				
Pool 1 (Navy Standard)...	Philadelphia....	3.00	3.00	3.00	<i>2.75@</i> <i>3.25</i>											S. E. Ky. screenings.....	Cincinnati....	1.25	1.25	1.10	<i>1.00@</i> <i>1.10</i>	Kansas lump.....	Kansas City....	5.00	5.00	5.00	<i>4.50@</i> <i>5.00</i>
Pool 1 (Navy Standard)...	Baltimore....	2.35	2.50	2.30	2.40											Kansas mine run.....	Kansas City....	4.10	4.10	4.10	<i>4.00</i>	Kansas screenings.....	Kansas City....	2.50	2.50	2.50	<i>2.50</i>
Pool 9 (Super. Low Vol.)...	New York....	2.30	2.15	2.25	<i>2.15@</i> <i>2.40</i>											*Gross tons, f.o.b. vessel, Hampton Roads.											
Pool 9 (Super. Low Vol.)...	Philadelphia....	2.30	2.30	2.30	<i>2.10@</i> <i>2.50</i>											†Advances over previous week shown in heavy type, declines in italics.											
Pool 9 (Super. Low Vol.)...	Baltimore....	2.20	2.10	2.15	<i>2.10</i>																						
Pool 10 (H. Gr. Low Vol.)...	New York....	2.00	1.90	1.95	1.90@ <i>2.25</i>																						
Pool 10 (H. Gr. Low Vol.)...	Philadelphia....	2.00	2.00	2.00	<i>1.90@</i> <i>2.10</i>																						
Pool 10 (H. Gr. Low Vol.)...	Baltimore....	2.00	1.75	1.90	1.95																						
Pool 11 (Low Vol.).....	New York....	1.75	1.70	1.70	<i>1.65@</i> <i>1.80</i>																						
Pool 11 (Low Vol.).....	Philadelphia....	1.70	1.70	1.70	<i>1.60@</i> <i>1.80</i>																						
Pool 11 (Low Vol.).....	Baltimore....	1.85	1.75	1.80	<i>1.70</i>																						
High-Volatile, Eastern																											
Pool 54-64 (Gas and St.)...	New York....	1.50	1.50	1.45	<i>1.35@</i> <i>1.50</i>																						
Pool 54-64 (Gas and St.)...	Philadelphia....	1.55	1.55	1.55	<i>1.40@</i> <i>1.60</i>																						
Pool 54-64 (Gas and St.)...	Baltimore....	1.40	1.40	1.40	<i>1.40</i>																						
Pittsburgh Se'd. gas.....	Pittsburgh....	2.65	2.65	2.65	<i>2.60@</i> <i>2.70</i>																						
Pittsburgh mine run (St.)...	Pittsburgh....	2.15	2.15	2.15	<i>2.10@</i> <i>2.20</i>																						
Pittsburgh slack (Gas)...	Pittsburgh....	1.65	1.80	1.80	<i>1.70@</i> <i>1.80</i>																						
Kanawha lump.....	Columbus....	2.85	2.80	2.95	<i>2.50@</i> <i>2.75</i>																						
Kanawha mine run.....	Columbus....	1.90	1.75	1.80	<i>1.50@</i> <i>1.85</i>																						
Kanawha screenings.....	Columbus....	1.15	1.25	1.50	<i>1.10@</i> <i>1.25</i>																						
Kanawha lump.....	Cincinnati....	2.90	2.40	2.50	<i>2.25@</i> <i>2.75</i>																						
Kanawha mine run.....	Cincinnati....	1.30	1.30	1.40	<i>1.15@</i> <i>1.65</i>																						
Kanawha screenings.....	Cincinnati....	1.15	1.25	1.00	1.00@ <i>1.15</i>																						
Hooking lump.....	Columbus....	3.05	2.85	2.85	<i>2.50@</i> <i>2.75</i>																						
Hooking mine run.....	Columbus....	1.95	1.75	1.85	1.75@ <i>2.00</i>																						

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

		Market Quoted	Freight Rates	Jan. 9, 1922		Jan. 16, 1922		Jan. 23, 1922†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.61			\$7.60@7.75		\$7.60@7.75		\$7.60@7.75
Broken.....	Philadelphia....	2.66		\$6.75@7.50	7.75@7.85	\$6.75@7.50	7.75@7.85	\$6.75@7.50	7.75@7.85
Egg.....	New York....	2.61		7.25@7.50	7.60@7.75	7.00@7.35	7.60@7.75	7.00@7.75	7.60@7.75
Egg.....	Philadelphia....	2.66		7.00@7.75	7.75	7.00@7.75	7.75	7.00@7.75	7.75
Egg.....	Chicago....	5.63		7.40*	6.95*	7.40*	6.95*	7.40*	6.95*
Stove.....	New York....	2.61		7.85@8.25	7.90@8.10	7.85@8.10	7.90@8.10	7.50@8.10	7.90@8.10
Stove.....	Philadelphia....	2.66		8.10@8.35	8.05@8.25	8.00@8.15	8.05@8.25	7.75@8.15	8.05@8.25
Stove.....	Chicago....	5.63		7.60*	7.20*	7.60*	7.20*	7.60*	7.20*
Chestnut.....	New York....	2.61		7.85@8.25	7.90@8.10	7.85@8.00	7.90@8.10	7.50@8.10	7.90@8.10
Chestnut.....	Philadelphia....	2.66		8.10@8.35	8.05@8.25	8.00@8.15	8.05@8.25	7.75@8.15	8.05@8.25
Chestnut.....	Chicago....	5.63		7.60*	7.20*	7.60*	7.20*	7.60*	7.20*
Pea.....	New York....	2.47		4.25@5.00	6.05@6.45	4.25@4.75	6.05@6.45	4.75@5.50	6.05@6.45
Pea.....	Philadelphia....	2.38		4.50@5.00	6.15@6.25	4.50@5.00	6.15@6.25	4.50@5.00	6.15@6.25
Pea.....	Chicago....	5.63		6.10*	5.60*	6.10*	5.60*	6.10*	5.60*
Buckwheat No. 1.....	New York....	2.47		2.50@3.00	3.50	2.25@3.00	3.50	2.75@3.25	3.50
Buckwheat No. 1.....	Philadelphia....	2.38		2.25@2.75	3.50	2.25@2.75	3.50	2.25@3.00	3.50
Rice.....	New York....	2.47		1.75@2.25	2.50	1.90@2.25	2.50	2.00@2.25	2.50
Rice.....	Philadelphia....	2.38		1.75@2.00	2.50	1.75@2.00	2.50	1.75@2.00	2.50
Barley.....	New York....	2.47		1.35@1.50	1.50	1.35@1.60	1.50	1.35@1.60	1.50
Barley.....	Philadelphia....	2.38		1.00@1.25	1.50	1.00@1.25	1.50	1.00@1.25	1.50
Birdseye.....	New York....	2.47			2.50		2.50		2.50

*Net tons, f.o.b. mines. †Advances over previous week shown in heavy type, declines in italics.

a large number of members from the exchange makes its further operation economically unwise, the notice points out. This exchange was organized by the N. & W. Ry. when the old Tidewater Coal Exchange went out of business.

After Feb. 15 coal over the Norfolk and Western will be consigned to the individual shippers, and no other change will be effective in the management of the coal business there. At the same time there is pending in the Circuit Court of Norfolk a petition from twenty-one coal shippers in the Lamberts Point exchange to restrain the N. & W. from collecting upward of \$500,000 in demurrage charges against them until the Interstate Commerce Commission has ascertained if the railroad's tariffs have been properly applied. The bill embodying this request was filed before the commission several weeks ago.

ANTHRACITE

Production of hard coal jumped to 1,643,000 net tons during the week ended Jan. 14, an increase of 400,000 tons over the preceding week. The output is still below the corresponding week of 1921, due to the hand-to-mouth buying which prevails. Many dealers are seemingly acting on the plan to reduce their stockpiles, knowing that there will be plenty of coal available to carry them through the period of wage readjustments.

COKE

Beehive coke production was 118,000 net tons during the week ended Jan. 14, an increase of 10,000 from the previous week's figure. The heavier output exerted a depressing effect on the spot market.

Production of beehive and byproduct coke in December was 2,374,000 net tons, little more than one-half of the monthly average in 1920.

MONTHLY OUTPUT OF BYPRODUCT AND BEEHIVE COKE IN THE UNITED STATES (In Net Tons)

	Byproduct Coke	Beehive Coke	Total
1917 Monthly average.....	1,870,000	2,764,000	4,634,000
1918 Monthly average.....	2,166,000	2,540,000	4,706,000
1919 Monthly average.....	2,095,000	1,587,000	3,682,000
1920 Monthly average.....	2,569,000	1,709,000	4,278,000
September, 1921.....	1,423,000	289,000	1,712,000
October, 1921.....	1,734,000	416,000	2,150,000
November, 1921.....	1,766,000	477,000	2,243,000
December, 1921.....	1,860,000	514,000	2,374,000

(a) Excludes screenings and breeze.

The quantity of coal required to manufacture the coke produced is estimated at 3,483,000 tons, of which 2,672,000 tons were consumed in byproduct ovens and 811,000 tons—less than a fourth—in beehive ovens. The coke industry is thus consuming coal at a rate 2,866,000 tons a month less than prevailed in 1920.

ESTIMATED MONTHLY CONSUMPTION OF COAL FOR MANUFACTURE OF COKE (In Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1917 Monthly average.....	2,625,000	4,354,000	6,979,000
1918 Monthly average.....	3,072,000	4,014,000	7,086,000
1919 Monthly average.....	2,988,000	2,478,000	5,466,000
1920 Monthly average.....	3,684,000	2,665,000	6,349,000
September, 1921.....	2,044,000(a)	456,000(a)	2,500,000
October, 1921.....	2,491,000(a)	656,000(a)	3,147,000
November, 1921.....	2,538,000(a)	752,000(a)	3,290,000
December, 1921.....	2,672,000(a)	811,000(a)	3,483,000

(a) Assuming a yield in merchantable coke of 69.6 per cent of the coal charged in byproduct ovens, and 63.4 per cent in beehive ovens.

EDITOR'S NOTE.—Coal Age index of spot prices of bituminous coal, regularly appearing on this page during the past year, will be resumed next week. It has been considered advisable to recalculate the figures on the pre-war base instead of the "government price" base, that we have been using. Figures for 1913 to date will be published next week and thereafter the index will be published weekly.

Foreign Market And Export News

Coal Paragraphs from Foreign Lands

GERMANY—Production of coal in the Ruhr region during the week ended Jan. 7 was 1,543,000 metric tons, according to a cable to *Coal Age*.

ITALY—Cardiff steam first is unchanged on the Genoa market at 37s. 6d., according to a cable to *Coal Age*. American coal is not listed.

INDIA—The market continues dull. A sufficient supply of railway wagons has been arranged from the coal field area. Jheria first is scarce, railway companies having secured the available supply. English coal is unchanged.

SWEDEN—The peat inspector proposes that activity should be resumed at the peat mills belonging to the State Railways. It is pointed out that 4,500,000 kronen would be saved for the railways in this way owing to the decrease which would be effected in the imports of coal.

SPAIN—Mining is improving in a slight extent. Strikes in northern Spain have been abandoned by the miners involved without securing the concessions desired. Increasing cost of living and falling wages have aggravated industrial unrest.

A royal decree announces that from Jan. 1, for a period of three months, which may be extended by another three months, a bonus of 5 pesetas per ton will be granted on coal of Spanish origin shipped from Asturian ports to other Spanish ports.

BRAZIL—Coal imports at Rio de Janeiro during October, 1921, amounted to 40,374 metric tons, as compared with 117,362 tons during the corresponding month of the preceding year, according to *Commerce Reports*.

Total imports for the first ten months of 1919, 1920, and 1921 are given below:

Coal	1919 Metric Tons	1920 Metric Tons	1921 Metric Tons
English.....	102,337	161,201	121,965
American.....	528,250	558,786	425,902
Belgian.....	1,000	.....	.....
French.....	.....	.....	880
African.....	.....	.....	36
Total.....	631,587	719,987	548,783

BELGIUM—The market is becoming firmer. Industrial recovery is having a favorable influence on the industrial section of the market. Household coals are also in better position.

The non-ratification by the Belgian Government of the coke convention has led the Syndicate des Cokes to abolish the special price granted since Dec. 1 to iron and steel works in the country. As from Jan. 1 this price has been raised from 95 to 102 fr.

GREECE—English fuels are now underselling American coals, c.i.f. Piraeus. It is believed, however, that America can meet the local market price, as the cost of mining and transporting is gradually reduced. The annual requirements for navy and army transports, state railways, municipal works, tramp power works, and indi-

vidual needs are about 250,000@300,000 tons. Recent orders indicate that the navy and army transports require about 240,000 tons annually, but the present orders are abnormal because of the war in Asia Minor. A list of the importers of coal in Greece may be obtained from the Bureau of Foreign and Domestic Commerce, or its district and co-operative offices, by referring to file No. NE-5024.

Export Clearances, Week Ended, Jan. 19, 1922

FROM HAMPTON ROADS:

	Tons
For Africa:	
Braz. S.S. Guaratuba, for Para.....	3,007
Du. S.S. Dardanus, for Port Said.....	1,787
For Atlantic Islands:	
Nor. S.S. Hellas, for San Domingo....	318
For Brazil:	
Br. S.S. Whately Hall, for Buenos Aires.....	4,960
For Cuba:	
Am. Schr. Snetind, for Cienfuegos....	2,192
Am. S.S. Carvallis, for Guantanamo... 3,248	
For Italy:	
Br. S.S. Cardiff Hall, for Porto Ferrajo.....	6,182
Br. Schr. Bessie A. White, for St. Johns.....	951
Am. Schr. Gladys M. Taylor, for St. George.....	1,888

FROM PHILADELPHIA:

For Ecuador:	
Nor. S.S. Granfos, for Guayaquil.....	890

Hampton Roads Pier Situation

	Week Ended Jan. 12	Jan. 19
N. & W. Piers, Lamberts Point:		
Cars on hand.....	1,277	1,498
Tons on hand.....	67,645	86,814
Tons dumped.....	86,525	122,469
Tonnage waiting.....	7,450	4,450
Virginia Ry. Piers, Sewalls Point:		
Cars on hand.....	781	830
Tons on hand.....	42,950	49,300
Tons dumped.....	89,822	73,771
Tonnage waiting.....	6,326	4,150
C. & O. Piers, Newport News:		
Cars on hand.....	605	824
Tons on hand.....	30,250	41,200
Tons dumped.....	34,469	41,830
Tonnage waiting.....	7,320	7,500

British Secure Heavy French Contract

Production in Great Britain was 3,675,000 gross tons during the week ended Jan. 7, 1922, according to a cable to *Coal Age*. As compared with the preceding week this is a gain of 600,000 tons. Production, however, failed to recover from the holiday slump as rapidly as was the case in either of the last two years.

Exports are steadily increasing, as shown in the following table. Prices are well held.

BRITISH COAL EXPORTS
(In Thousands of Gross Tons)

	1913	1920	1921
November	5,913	1,361	3,594
December	6,229	2,302	4,309
Cal. year	73,400	24,932	24,661

The Indian Government has placed an order on the Cardiff market for the supply of 100,000 tons of steam coal.

Glasgow has received an order to supply 300,000 tons of coal to the French railroads over three years. This is one of the largest contracts undertaken in Britain. The contract is to supply English and Welsh coal only. Other markets continue to inquire for future deliveries.

The industry still shows signs of recovery; more miners are finding employment and longer hours are being worked in the majority of districts. Scotland and the north of England have effected the most rapid recoveries, though in the former areas the effects of the damage to pits is still a factor.

Wages continue to fall as the appended table indicates:

BRITISH MINE WAGES

District	Percentage on Base Rates	December	January
Scotland	136.44	132.75	
Durham	119.73	93.87	
Eastern area	109.54	109.86	
Northumberland	107.35	85.76	
Lancashire and Cheshire	72.76	72.35	
Forest of Dean	64.33	62.00	
Somerset			
Radstock	57.58	57.61	
Newbury	22.00	22.00	
North Wales	44.50	48.30	
South Staffordshire	33.92	32.00	
South Wales	28.03	28.00	

Bunkers Increase at Hampton Roads

Business showed a slight increase last week on the side of bunkers and New England shipments, but foreign cargoes were scarce and of small proportions. Prices remained the same with very little to offer on the spot.

Accumulations at Tidewater increased somewhat during the week, with the re-opening of mines in the Southern fields. Freight rates were unchanged, both coastwise and foreign. A steady increase in general shipping put a bet-

ter tone in the bunker market, and an appreciable increase in dumpings at all piers was noted.

Dealers were more optimistic than at any time since November, and prospects of steadily better business during the coming months were believed to be in sight. The bunker business, particularly, shows much promise of increasing steadily in volume. New England markets are holding their own, which is regarded by coal men here as a favorable indication of better business.

December Exports Touch Low Point

December exports of bituminous coal fell to the unprecedented low point of 770,092 tons. In December, 1920, coal exports totaled 2,682,715 tons. The exports to Canada fell from 1,332,258 tons in December, 1920, to 621,993 tons in December, 1921. Imports of British coal during December totaled 17,031 tons. The detailed figures, which are those of the Bureau of Foreign and Domestic Commerce, are as follows:

DECEMBER EXPORTS AND IMPORTS
(Gross Tons)

	December 1920	December 1921
Exports: bituminous coal		
By rail to		
Canada	1,332,258	621,993
Mexico	46,261	6,637
Total	1,378,519	628,630
By vessel to		
West Indies	33,529	17,567
Panama	18,478	9,678
Cuba	69,919	53,262
Total	121,926	80,507
Argentina	119,763	22,384
Brazil	50,396	12,492
Chile	112,102	1,067
Uruguay	4,537	
Total South America	286,798	35,943
France	217,497	
Italy	189,346	
Netherlands	102,986	
Sweden	54,637	
Switzerland	27,949	
Total Europe	592,415	
Egypt		11,631
Other Countries	303,057	13,381
Total bituminous	2,682,715	770,092
Total anthracite	372,441	306,277
Total coke	77,109	23,034
IMPORTS		
Anthracite	337	192
Bituminous	103,944	87,506
Imported from:		
United Kingdom	150	17,031
Canada	93,784	66,520
Japan		600
Australia	9,701	2,614
Other countries	309	741
Coke	2,195	3,165

Pier and Bunker Prices, Gross Tons

Foreign Bunker Quotations by Cable to Coal Age

PIERS	Jan. 14	Jan. 21†
Pool 9 New York	\$5.45@55.60	\$5.45@55.65
Pool 10, New York	5.20@5.30	5.20@5.30
Pool 9, Philadelphia	5.50	5.50
Pool 10, Philadelphia	5.10@5.30	5.10@5.30
Pool 71, Philadelphia	5.50@5.60	5.50@5.60
Pool 1, Hamp. Rds.	4.70@4.90	4.65@4.80
Pools 5-6-7 Hamp. Rds.	4.30	4.25
Pool 2, Hamp. Rds.	4.50@4.60	4.45
BUNKERS		
Pool 9, New York	5.75@5.90	5.80@5.95
Pool 10, New York	5.50@5.60	5.50@5.60
Pool 9, Philadelphia	5.60@5.85	5.60@5.85
Pool 10, Philadelphia	5.40@5.50	5.40@5.50
Pool 1, Hamp. Rds.	4.80@5.10	4.80@4.90
Pool 2, Hamp. Rds.	4.60@4.75	4.60
Welsh, Gibraltar	40s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	65s. f.o.b.	55s. f.o.b.
Welsh, Lisbon	45s. f.o.b.	40s. f.o.b.
Welsh, La Plata	62s. 6d. f.o.b.	60s. f.o.b.
Welsh, Marseilles	125 fr. f.o.b.	120 fr. f.o.b.
Welsh, Genoa	40s. t.i.b.	40s. t.i.b.
Welsh, Madag.	42s. 6d. f.a.s.	40s. f.a.s.
Welsh, Teneriffe	42s. 6d. f.a.s.	40s. f.a.s.
Welsh, Malta	45s. f.o.b.	40s. f.o.b.
Welsh, Las Palmas	42s. 6d. f.a.s.	40s. f.a.s.
Port Said	51s. 6d. f.o.b.	49s. f.o.b.
Belgian, Antwerp	32s. 6d.	30s.
Alexandria	46s.	46s.
Bombay	38 rupees	38 rupees
Capetown	42s. 6d.	42s.

Current Quotations British Coal f.o.b. Port, Gross Tons

Cardiff:	Jan. 14	Jan. 21†
Admiralty, Large	24s. 9d.	24s. 6d. @ 25s.
Steam, Small	18s. 6d.	18s. @ 18s. 6d.
Newcastle	23s. 9d.	24s.
Best Steams		
Best Gas	21s. 6d.	20s. 6d. @ 21s. 6d.
Best Bunkers	20s. 9d.	20s. 6d. @ 21s.

† Advance over previous week shown in heavy type declines in italics.

British Competition Not Insuperable

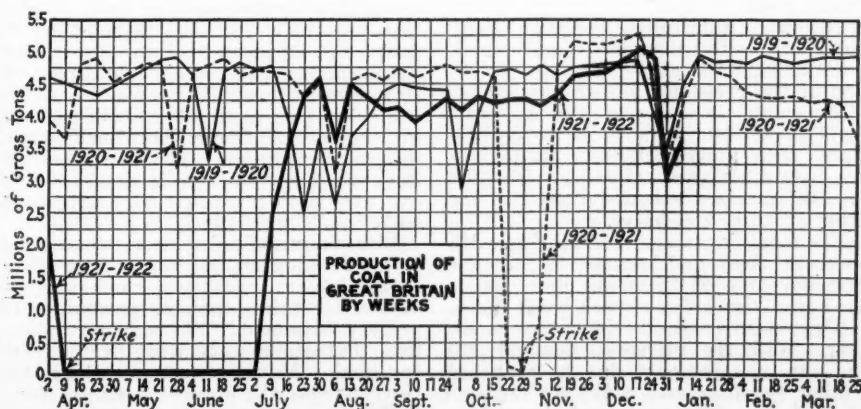
Much of the coal exported from the United Kingdom, especially the Cardiff fields, is now sold below f.o.b. costs, and it is highly improbable that the British can long continue to sell their export coal at present prices, says the Fuel Division of the Department of Commerce, basing its statement on evidence produced from British sources.

American exporters have a fair chance of getting a considerable share of the international coal business, particularly if all the factors entering the American coal industry will get together on an efficient business basis.

Largely because of the non-profit prices of the British, their coal exports for the months of August, October and November increased 32 per cent over corresponding months of 1920. Shipments of British coal have actually been made to the West Indies, a market held exclusively by the United States for twenty years.

The c.i.f. costs of British coal at West Italian ports are from 65c. to \$2.35 lower than the c.i.f. costs of United States coal; at Rio de Janeiro c.i.f. costs are from 21c. higher to 52c. lower than for United States coal.

British mine wages are now at rock-bottom, since they are now at the minimum fixed by the agreement of 1921. Wages have since March, 1921, been reduced on an average of about 46 per cent. American wages are still at war-time levels. British railway coal freight rates have been cut approximately 12½ per cent. American railway charges are still at the peak point. British dock charges were reduced 25 per cent on Nov. 1, 1921. Combining these reductions with the recent cuts in railway charges, the total reduction in the cost of delivering coal from the mines f.o.b. ship averages about one shilling per ton.



Reports From the Market Centers

New England

BOSTON

Market Continues Without Change—Small Tonnages Being Absorbed—Restricted Outlet for Pennsylvania Grades—Anthracite Demand Very Light.

Bituminous—The larger buyers show very little interest in the current market and there are as yet no signs of any better demand. In this respect there is no change from early in the month, although among small steam-users there is a certain amount of buying. As yet there seems no reaction here to newspaper reports of strike possibilities, but this is only natural in view of large reserves that are still characteristic of this territory. Railroad traffic shows no improvement over December and in no direction do we learn of any better situation in the industries upon which the railroads depend.

At re-handling points like Boston and Providence prices on Pocahontas and New River for inland delivery have again eased off, even for small lots. There are a few factors who are still asking \$6.25 from scattered buyers, but one agency has named \$6.05 as open figure on cars Boston, and cargo quantities have been disposed of at considerably less.

At the Hampton Roads piers there is a narrower margin between receipts and dumpings, and there is less of the tendency to force coal on reluctant buyers. Prices f.o.b. vessel for high grades have fluctuated from \$4.60@\$.4.85, but a close price today would be \$4.65@\$.4.70. The spot market is in that much better shape.

At this end, too, there is a certain tonnage being steadily absorbed. Orders for a few cars each that would ordinarily go to all-rail shippers are being filled by shippers here who are regularly distributing smokeless coals sent here in large cargoes at minimum rates. There is something like old-time competition between the different interests for every effort is made to inform buyers as to current costs, both f.o.b. mines and of transportation.

Attempts are made to re-open operations in central Pennsylvania that have been shut down for several months, but in this territory there is little encouragement for such efforts. Both run of mine and slack from the Pocahontas and New River districts cost so much less under present conditions at most inland manufacturing centers that \$1.50@\$.1.75 per net ton at the mines on medium grades is no inducement. For outlet in New England these coals will have to rely upon buyers well removed from the Tidewater zone, an area that now covers considerably more than half this whole section.

Vessel freights have not softened to the extent that was anticipated. Even the largest schooners that are casting about for orders draw the line at about 85c. to Boston, and barges are held at a

range 15c.@25c. higher, depending upon size and draft. The recent gales along the coast have had their effect and it is generally recognized that at present rates there is no real profit in transporting coal.

Anthracite—Retail distributors report better business this month than in December, but this improvement in demand has not yet reached the wholesale trade. Tonnages thus far have been extremely light, but there is hope for better things in February.

The trade is rather counting upon enough newspaper discussion of labor differences to create an extra demand that the weather of itself would not justify. The season has been remarkably free from storms, but the average temperature has been low enough to make an impression upon household supplies. The independents are offering all sizes freely, although it is on egg and pea that they make their most attractive quotations.

Tidewater—East

NEW YORK

Domestic Coals Move Slowly—Steam Sizes More Active—Bituminous Situation Brighter—Consumers Watching Union Convention.

Anthracite—From the viewpoint of the retail dealer the situation shows some improvement, but this cannot be said of the wholesale end. The increased demand has not yet been reflected in wholesale offices but the prospects are considered better.

Retailers have been drawing heavily upon their reserve stocks the past few weeks and it is expected they will desire to have a good supply on hand April 1, in view of a possible suspension of mining. An obstacle in the way of increased buying is the matter of lower freight rates.

Demand has been controlled by weather conditions and a sudden change to lower temperatures has resulted in a steady flow of small orders. Peddlers report a thriving business during the stormy period of last week. However, nothing short of continued cold weather will put the industry on a steady basis.

The trade watched the outcome of the Shamokin convention and many expect a suspension of mining at the expiration of the present working agreement.

Movement in none of the domestic coals is active. Egg is in better demand than stove, although quotations are below company circular. Demand for all four sizes is better along the line than at this Tidewater.

The local docks are well stocked with domestic coals and because of the slow demand some of them are being operated on a three-day-a-week basis.

The steam coals are in better condition. With the increased demand and the cut in shipments due to curtailed mining, the distressed coal here has been cleaned up. The strongest demand is

for barley, the better grades of which are being quoted about 10c. more than company circular.

Bituminous—Expectations of a tie-up on April 1 did not cause any undue flurry in this market. However, as soon as some consumers have considered the outlook they may enter the market and refill their bins.

With the situation remaining unsettled there has not been much accomplished with regard to the closing of contracts. Certain offices have made quotations, subject to readjustment if accepted, based on wage conditions. Other houses are reported to have made contracts so far as tonnages go, the price to be agreed upon as soon as the miners and producers settle their differences. The majority of consumers and buyers are deferring their contract negotiations, however, until the new wage agreement is reached.

Large tonnages of Southern coals were reported as arriving here during the week with quotations around \$5.75 alongside, if the vessel could be accommodated at the pier. The export situation does not show any change and is not expected to do so now that the railroads have refused to cut freight rates on coal for export.

There were some rapid changes in price asking during the early part of the week, quotations depending entirely upon the tonnage available to the shipper. Some Pool 10 distress coal was quoted early in the week from 10c. to 15c. lower than the regular market quotations.

PHILADELPHIA

Anthracite Moves With Weather—Dealers Let Stocks Run Down—Steam Sizes Fairly Active—Bituminous Changes Little—Inquiries Increase—Prices Grow Firmer.

Anthracite—Retail trade responds to the thermometer. Yards have done heavy business on Mondays following cold Saturdays and Sundays, but purchases are small. This is partly because so many dealers have reduced prices that the consumer actually fears he will suffer loss should he take more than he needs at the moment. Strike talk so far has made very little impression upon buyers.

Many dealers seem to have no fear of a strike as the number of yards with big gaps in their stock piles is increasing. A small minority takes the stand that keeping a full yard is a good business move. These men expect to go into the spring with enough coal for the following two months.

The demand now is for stove and nut, in almost equal proportion, with the trade ordering in small quantities. The companies producing the best grades seem recently to have been able to make full time, but there have been suspensions with some operators of from two to three days a week.

Steam sizes continue to hold the improvement as shown last week, and with some shippers gains are reported. Buckwheat seems to be in good demand and even rice is somewhat active, and barley is moving nicely.

Bituminous—Strike news emanating from Washington has had a little effect on the buyers, causing a number of inquiries for prices and the possibility of prompt shipment. There is no indication that strike talk will start a rush for coal. Many consumers think the Government will prevent a suspension.

Buyers continue to expect lower

freight rates. All buying recently has been for current use, with one exception. The utility plants have lately been in the market for more coal, and quite a number of them now have stock on hand for from sixty to ninety days.

The industrial situation is difficult to analyze. The basic industry—iron—seems to have improved slightly in this territory, but textiles have received a decided check.

Spot prices remain low but firm. High-grade coals have the call and there is really light demand for low-volatile fuels under Pool 10. The non-union mines in central Pennsylvania in particular seem to be getting prices a little closer to the other operations, as the demand on them has been fairly strong recently.

BALTIMORE

Considerable Discouragement in Soft Coal Lines—Demand and Prices Very Flat—Retailers Not Reordering Anthracite.

Bituminous—The trade is considerably disappointed at the failure of promises that came with the new year for an early improvement in business. Line business is extremely dull and at prices below actual cost of production in many cases. Export business has stopped almost completely, there being not a single shipment other than one to Porto Rico since Jan. 1. The bunker trade is unusually slow.

The reason for the flat state of affairs as far as bunkers are concerned covers a wide range, but one element has to do with the fact that quite a large number of ships flying foreign flags are now bunkering on the other side for the round trip. This comes on top of the fact that recently several ships arrived at American ports from England with coal in ballast, which could be sold here at a price lower than the American rate on best coals at Tide.

On line business it is true there has been some stimulation from certain lines of industry entering the market for limited supplies, but the general situation is still far from healthy. Bunker coals took a new slide the past week, following their recent recovery to some extent, but did not get down to the point at which they were sold several weeks ago on Shipping Board contracts, which set the low for a number of months past.

Pools 9 and 71 were obtainable as low as \$4.80 a gross ton at the piers before loading and trimming. Line prices too were none too healthy and individual need of selling rather than need of buying was the principal factor in setting the price on these transactions. Best steam coals, outside of Pool 1 which is not so largely on the market, as it has been pretty well covered on contract, are offering \$2@2.25 a net ton f.o.b. mines. The majority of sales are around \$2.10@2.15. There is little market for the poorer grades in steam coals. Best gas lump is also on the market at \$2@2.15 with run of mine at \$1.85@2. West Virginia gas run of mine is offering at \$1.40@1.65.

Anthracite—While conditions are nearer normal for the season than are those relating to soft coal, the situation is by no means satisfactory. Not only does ordering continue slow, but collections are bad. This makes it hard for some of the dealers to order ahead on a cash payment basis themselves.

The result is that the yard supplies

of some of the smaller dealers are much below normal. There is on hand, however, sufficient to meet any emergency of a moderate nature.

BUFFALO

No Change In Bituminous Situation—Even Consumers Without Much Coal Refuse To Buy—Anthracite Decidedly Quiet.

Bituminous—The demand does not improve. There is a pretty steady trade of small volume in existence and that is all that shippers are looking for right away. Since about the middle of September, 1920, when the big bulge in the trade began to pass, there has never been any sort of revival of the bituminous market. Every change in prices was a decline. It is so yet, though the bottom has now been so completely reached that prices have been steady of late.

The weakness of the market is shown still by the reports of coal offering at specially low prices, where shippers appear to have failed to sell the coal before sending it out.

Nothing very encouraging as to the fixing of wages has developed of late. All miners will stand out for present pay as long as there is any prospect of getting it and they will be still more tenacious in regard to the check-off, where the real contest promises to arise. Operators believe they have the winning side and they will be entirely supported by jobbers.

Bituminous prices continue at \$2.75 for Youghiogheny gas lump, \$2.50 for Pittsburgh No. 8 steam lump, \$2.25 for Allegheny Valley and other mine run and \$1.50@1.75 for slack, adding \$2.36 to Allegheny Valley and \$2.51 to other coals for freight.

Anthracite—The market is dull. Consumers do not buy if they can avoid it and nobody is stocking. Retailers are much puzzled to find even people with plenty of means buying a single ton at a time. This means an unnecessary expense to the seller and more or less waste, but the consumer cannot be convinced that coal is not going to be cheaper soon.

Independent anthracite is moving at a slow rate. The mine prices are nominally about a dollar over the schedule prices.

Coke—The trade is quite as dull as coal. The furnaces are running at such a low rate that they do not need to buy much outside of the regular supply. Quotations remain at \$4.15 for 72-hr. Connellsville foundry, \$3.15 for 48-hr. furnace and \$2.75 for stock, adding \$3.64 for freight to Buffalo.

Northwest

MILWAUKEE

Business a Little More Satisfactory—Pocahontas Reduced \$1—No Change in Other Grades—Stocks Heavy.

With the exception of a cut of \$1 per ton in Pocahontas, all prices hold firm. The railroads report a steady falling off in the coal business out of Milwaukee, but local markets are more active. More coal seems to be going direct from the mines to the Northwestern country by rail than formerly. Dock stocks of anthracite and soft coal are still heavy.

Stocks have not been cut into to any great extent as yet, in fact it will take a strong pull of winter weather to clear the yards for another season. Perhaps this will be an advantage in spring, should there be a check in the coal movement at that time due to strikes at the mines.

So much coal with an excess of moisture content is being delivered in Milwaukee that an ordinance is being drafted for submission to the Common Council fixing a definite percentage of moisture that will be allowed here. Some coal tested by the City Sealer contains 17 per cent moisture.

Following are the retail prices compared with those which prevailed at this time last year:

ANTHRACITE

	Jan., 1921	Jan., 1922
Egg.....	\$15.95	\$15.70
Stove.....	16.20	16.10
Nut.....	16.20	15.95
Pea.....	14.35	14.10
Buckwheat.....	12.65	11.50
	\$1 for carrying	75c for carrying

BITUMINOUS

	Jan., 1921	Jan., 1922
Pitts., Hock., and Yough., screened.....	\$10.75	\$7.75
Pile run.....	10.25	7.25
Screenings.....	9.00	6.75
West Virginia screened.....	11.00	8.00
Pile run.....	10.50	7.50
Screenings.....	9.00	7.00
Pocahontas screened.....	16.25	11.50
Mine run.....	12.50	7.75
Screenings.....	11.00	7.25
Smithing.....	13.00	8.00
Kanawha gas mine run.....	10.00	7.50
Ill. and Ind. screened.....	10.00	8.00
Pile run.....	9.50	7.50
Screenings.....	9.00	7.00
*Coke.....	17.25	15.00
	\$1 for carrying	75c. for carrying

*No carrying charge on coke.

DULUTH

Screenings Prices Strengthen a Little—Anthracite Is Firm—Some Docks Are Fairly Busy While Others Are Idle.

Strengthening prices in screenings characterize the Duluth market this week, but demand as a rule remains poor in the outlying districts. In the city dealers report that coal sales to retailers are improving.

The advance in screenings has not been general throughout all docks, but several are quoting at \$4.25, while others are firm at \$4. Anthracite remains unchanged.

The distribution of trade is spotty throughout the docks here according to working time of dock employees. One dock is shipping every day of the week and the managers claim that all coal will be off before the opening of navigation. On others the men are only working three days a week or less.

The increase in local retail trade is looked upon as a good omen by dealers, who say that the outlying districts will follow the city and will order coal soon. The pickup in the city has been most noticeable in the last week, due to the fact that many have exhausted small stocks of surplus supply held in the home from summer purchases.

MINNEAPOLIS

Even Cold Snaps Fail to Revive Market—Soft Coal Rebounds 50c.—Docks Still Have Half Their Receipts on Hand.

All signs fail in dry weather,—likewise in dull business periods. The effect of a little winter weather has been

negligible on the trade. During the past fortnight prices on soft coal have slumped \$1 a ton and then with one company they rebounded 50c. The rebound is difficult to explain. The revised prices which add 50c. to the low figures give the following: Hocking, Youghiogheny or Splint stove or nut, f.o.b. dock, \$6.50, run of pile, \$6; Hazard stove or lump, \$7.50, run of pile, \$7; Elkhorn stove or lump, \$8, run of pile, \$7.50; Pocahontas egg and lump, \$9. The last was not advanced. Screenings, \$5.25.

The situation is that the turn of the year finds the docks with more than 50 per cent of both hard and soft coal receipts of the season still on hand. There was a little over 5,000,000 tons of soft coal on the docks Jan. 1 and nearly 800,000 tons of hard coal. No matter how good a demand may set in, these stocks will not be anywhere near exhausted by April 1.

It is unlikely that they will be reduced more than 10 per cent during January and February and possibly something less than half that for March—possibly 15 per cent reduction for the three months of January, February and March. So far as soft coal is concerned, this is subject to material revision if conditions industrially should change. But hard coal seems unlikely to show much deviation.

This means an immense stock carried over into the new season, which will doubtless come into competition with new coal mined under cheaper costs. The competition will probably not be developed until some time into the late spring or summer. For it is accepted as about certain that there will be a prolonged suspension of mining during the period that the new scale is being worked out.

One thing which may soon start people to buy is the growing feeling that it will be some time before any real reduction in freight rates may be expected.

Inland West

CLEVELAND

Strike Threat Beginning to Affect Market—Slack Is Weaker—Receipts Increase.

The warning of Secretary Hoover that a coal strike was imminent has had the effect of arousing consumers in this district to the true situation which confronts them. As a result inquiries are beginning to appear and operators believe that these are forerunners of a substantial buying movement which will be well under way by the first of the month.

Purchasing agents of industrial companies are on the anxious seat. They want to obtain the benefit of reduced railroad rates generally expected to be in effect by April 1, and on the other hand, if the strike appears certain, prices are bound to rise. Too prolonged delay will mean that they may be deprived of supplies.

As a result, the developments in the labor situation in the very near future will tell whether or not consumers are to throw price considerations to the winds and seek to cover their requirements.

Operators are predicting a rise in prices by April. Not only are prices ex-

pected to advance, but it is pointed out that the assurance of a strike will mean that little coal will find its way from the mines to consumers' stock piles after March 15. The railroads will see to that. Following their usual tactics the roads will provide first for their own needs in the case of a strike and for a week or so before April 1 they will hold practically all the fuel they get.

In view of these considerations far-seeing buyers are moving now to cover their requirements. Slack prices have been softening in the last few days and latest quotations were around \$1.75 a ton. Industrial stagnation continues but signs are accumulating that improvement in activities will appear shortly in such important industries as iron and steel. Motor and tire companies in this district have already begun to operate on a better basis.

Receipts of bituminous coal for industrial consumers and retail yards took quite a spurt during the week ended Jan. 14. The number of cars received for industrials was 1,087, retailers 370, total 1,457, an increase of 641 cars over the preceding week.

CINCINNATI

Prices Hold Up Fairly Well, Though Some Brokers Sell Low—Further Drop Expected.

While prices have held evenly there are signs of a further drop. The bituminous run of mine market price was \$1.25@1.50, yet there has been a lot of coal passing through brokers' hands a great deal below this figure. This, of course, is coal that is feeling the pinch that follows when the market fails to absorb readily. When it clutters the channel sufficiently it is bound to cause another break.

About the only bright spot in the market has been a little strengthening of the domestic lines. West Virginia and southeastern Kentucky lump and block that sold off to \$2.25 at this time last week has revived and some of the latter operators are asking \$2.75 for shipments. This seems traceable to the clean-up of old stocks throughout the selling district.

Smokeless coal is generally weaker, due perhaps to the close margin between consumption and production. The smokeless slack market is none too keen. The price asked is \$1.25@1.50 but there have been quantities sold for less.

The retail situation was given another jolt last week. Those who had failed to follow the cut made by one company with a dozen or more branches slit the price on bituminous lump to ribbons, though an effort was still being made to hold up the smokeless line. The range for the week was: Smokeless lump, \$8@9; run of mine, \$7@7.25; slack, \$6@6.25; bituminous lump, \$6.50@7; run of mine, \$6; slack, \$4@5.

COLUMBUS

Better Steam Demand Develops—Domestic Trade Is Still Quiet—Production Increasing Slightly.

A better steam demand has developed in the past week. Orders are coming mostly from the large consumers and show that reserve stocks are being depleted and that there is a need for replenishment. Public utilities are buying fairly well and some buying on the

part of public institutions is reported. Iron and steel plants are taking a larger tonnage. Prices have not been strengthened materially.

The domestic trade is rather quiet, following some increased activity due to lower temperatures. Warmer weather followed and the slight buying spurt subsided. Retail stocks are not as large as formerly as dealers have been cleaning up to a certain extent.

Retail orders are generally small as householders are buying from hand to mouth. Prices are practically unchanged.

Production has not increased materially during the past few weeks. In the Hocking Valley the output is estimated at 18 to 20 per cent and in the Pomeroy Bend field only slightly higher. The output in Crooksville and Cambridge is reported around 17 per cent.

INDIANAPOLIS

Wide Reductions at Retail—Market Continues Sluggish.

Price reductions, ranging 25c.@1.50 a ton, have been announced by Indianapolis coal dealers. The largest single reduction was announced on Pocahontas shoveled lump. The new price is \$8.50, a decrease of \$1.50 as compared with the price of ten days ago.

The general reason given was that retail coal prices follow the trend of general market conditions as governed by supply and demand. There has been an average drop of 50c. in coal prices since the first of the year, some dealers said.

The wide difference in the extent of reductions on various coals were said by some to be due to variable wage scales paid to miners in union and non-union fields. This difference in wages amounts to \$1 a ton difference in price to the consumer on the union and non-union coal, one dealer said.

Another ascribed variations in prices on Pocahontas among dealers to the fact that some laid in large stocks last summer at the mine price of \$5.50, whereas it is now selling at the mines for \$3. The determination of these dealers to avoid a loss on the stocks that they bought prompts them to keep the price at a high figure.

CHICAGO

Steam Market Weak—Domestic Aided by Cold Weather—Eastern Coals Soften Prices—Outlook Better.

The market is still poor as the demand for steam coals has not increased, while so far as domestic coals are concerned, there has been, it is true, a little improvement but merely on account of the weather.

The middle of last week saw the first real cold spell that the city has enjoyed for the past two winters. This weather is at least going to give retailers a chance to make some little dent in the huge piles of surplus coal they have around their yards. The general public has but little coal on hand and this cold weather will make a decided impression on supplies.

Rumors that prices on Franklin County coal, in some cases, have been cut became more prevalent this week and we understand that a number of large wholesalers were buying furnace size as low as \$3. This has not been substantiated as yet, but it has been found very generally, that where there

is smoke there is fire. Evidently some of the operators of southern Illinois have grown tired of seeing their trade taken away from them right under their noses and by Eastern competitors.

The East continues to flood Chicago with cheap smokeless coals. Distress sales have been very frequent and prices have gone as low as at any time during the last six months. Some Kentucky block had to be sold at a sacrifice last week. The demand for anthracite is no better or no worse than it has been during the past three weeks. Those who are buying it are only taking their immediate needs.

The coal men are a little more optimistic than they were a short time back, not because they see signs of renewed industrial activity, but because they realize certain economic changes have taken place in the business structure of this country which will be very beneficial in the long run. As an example of this they point to the fact that money is very much easier than it has been in a long time, and wages are being deflated fast.

ST. LOUIS

Cheaper Grades of Domestic Move Better—A Little Call for Storage in Steam—Market Generally Quiet, Although Cold Weather Prevails.

The few days of brisk winter weather helped move small lots of Standard and Mt. Olive. The local steam situation has shown some activity in small orders for storage coal. Very little Cartersville is moving for steam or domestic. Anthracite is unusually quiet and coke shows some little activity.

Country domestic is good in spots, but steam call is far below what was expected after the first of the year and little, if any, activity is shown in storing.

Some coal is moving through to the Northwest via Omaha, and a fairly good shipment of Standard steam coal has moved to the Chicago market.

DETROIT

Bituminous Buying Continues Light—Receipts Are Not Large—Anthracite Market Quiet.

Bituminous—Consumers are not showing a great deal of interest in offerings. There is not much buying in either branch of the market, and the situation generally is described as being about as sluggish as at any time during the closing weeks of last year.

The feeling seems to be extending that very little change is to be expected in the condition of the Detroit market for some months to come. There is likely to be little improvement in buying demand for either steam or domestic coal until after the general business situation has made considerable further progress toward normal.

In the opinion of the trade, the general improvement in business, now under way, will continue slowly, with the probability that by midsummer, there will have developed a demand for transportation facilities that will produce something of a car shortage. Steam coal buyers will then be unable to pick up bargain lots and will be forced to a realization of the necessity of entering arrangements that will assure continuity of their fuel supply.

Consumers of steam coal, during recent months, have become so accustomed to making their purchases on a hand-to-mouth basis, that they have

come to believe they can at any time, buy sufficient spot coal to provide for the reduced requirements of their plants.

Smokeless lump and egg is quoted \$3 @ \$3.25, mine run at \$2.15, nut and slack at \$1.25. Ohio 3-in. lump is \$3, 1½-in. lump \$2.75, egg \$2.25, mine run \$1.90, nut and slack \$1.60. West Virginia 4-in. lump is \$2.60 @ \$2.75, 2-in. lump, \$2.25, egg \$2, mine run \$1.65, nut and slack \$1.25. Pittsburgh No. 8 district 1½-in. is \$2.35, 1-in., \$2.25, mine run, \$2, nut and slack, \$1.65.

Anthracite—While extremely cold weather has slightly stimulated demand, the buying falls much short of normal, due to unemployment and unusual economy in consumption.

South

LOUISVILLE

Mine Quotations Weaker—Retailers Cut Prices To Reduce Stocks.

Prices at the mines are slightly weaker and screenings are in somewhat better supply. Operators do not expect much business soon and would not accept contract business if it appeared.

In some circles it is believed that if union miners strike non-union fields will be busy, and men there will be happy to stay on the job.

With no semblance of winter weather in Louisville the retailer with large stocks cut prices a dollar a ton Jan. 17 on all prepared coals, and reduced also on steam. There has been no shortage of gas, which is being burned for fuel at the present low rate.

Coal that sold in early December at \$8 @ \$8.25 is now \$6.50 @ \$7. Mine run ranges \$5.25 @ \$6.50 and screenings \$4 @ \$4.25, delivered by the retailer.

Some of the stock on retailers yards cost \$3.50 @ \$3.75 and \$2 for freight, making cost on yard \$5.50 @ \$5.75 without including carrying charges or overhead. Of course some stock cost only \$2.75 @ \$3. However, delivery costs are around 75c. @ \$1, and the retailers will do well to break even.

Southwest

KANSAS CITY

Retail Business Picks Up—Steam Coal Outlook Is Better—Howat Followers Still Out.

Winter weather continued throughout the week. This stimulated retail deliveries and demand is about normal for the first time this season.

Some apprehension is felt over the outcome of negotiations for a new wage contract and it is expected that the demand will increase from now on till the old wage contract expires. Railroads will begin very soon to store coal. Far-sighted customers and especially steam plants will begin storing coal early before the demand becomes too heavy and forces the price up.

The situation in the Kansas field is unchanged. Operators cannot take the strikers back because they are not members of the union and that organization is either slow in reinstating the strikers and giving them card memberships or the strikers are loath to apply for membership and thereby repudiate Howat.

Prices are as follows: North Missouri lump, \$4.25; mine run, \$3.50; washed slack, \$3.25; raw slack, \$2.50. Arkansas lump, \$6; mine run, \$3.75 @ \$4.25; slack, \$2.50. McAlester lump, \$8.50; nut, \$7; slack, \$2.50. Central Illinois lump, \$2.50; egg, \$2.25; slack, \$1.75 @ \$2; Franklin County lump, \$4.25; egg, \$4.05. Ordinarily Franklin County has a moderate demand in this territory, but buying has been light this year, due to the general disposition on the part of the retail trade to buy the lowest priced coal.

West

SALT LAKE CITY

Retail Business More Active—Operating Conditions Unimproved.

Retailers are enjoying the best business they have experienced in many months. Things are still quiet in the operating field. Revised figures on last year's production show that only 4,000,000 tons were mined in the state, compared with 6,004,788 in 1920.

DENVER

Production at Low Ebb—More Wage Cuts Announced—Rockvale Mine Reopens.

Colorado suffered a decrease of 3,575,537 tons in its coal production in 1921 as compared with the 1920 tonnage. Intermittent cold spells have been insufficient to keep up anything like a full time output; in fact, production has been about 100,000 tons under the average weekly output for this time of year. Production for the week ended Jan. 7 was 121,000 tons—almost as low as that of the middle of last June.

Three additional independent bituminous companies have announced wage reductions corresponding with the 30 per cent cut inaugurated by the Colorado Fuel & Iron Co. They are the Juanita Coal & Coke Co. of Bowie; Sam Perry Coal Co., Florence, and the Ohio Creek Coal Co., Gunnison.

The Rockvale Mine of the C. F. & I. Co., where a sympathetic strike was staged during the recent trouble, has been reopened. Coal Creek, Emerald and Fremont mines were shut down at the same time, and will be reopened soon. In the meantime the crew of the Rockvale is being selected from all four camps.

Canada

TORONTO

Cold Weather Brings Improved Business—Receipts from Mines Show Decrease, but Good Supply on Hand—Prices Firm.

Demand for anthracite has been considerably improved by the setting in of cold and stormy weather and dealers are receiving good orders. Receipts from the mines show a considerable decrease due to the holidays, but enough is coming forward to keep the yards well stocked.

Bituminous is little called for and there appears no likelihood of any marked improvement in the demand in the near future. Quotations are unchanged from former levels.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Demand Remains Light, Though Sharp Competition Shaves Prices Down a Little—No Stocking Against a Strike Yet.

Demand for coal does not seem to be any heavier, and, judging by prices going, it is less than it was a few weeks ago. Possibly the sharper price competition is due to operators making a stronger effort to run. A price of \$1.50 on mine run is now quite common in several open-shop districts, and is by no means the limit as there are occasional quotations of \$1.25 or \$1.20, though probably only on "distress" tonnage.

Production in the Pittsburgh district under union auspices is confined almost wholly to such gas coals as commands a relatively high price on account of its quality, and to domestic lump in which quality also is a factor, the difference in cost—f.o.b. mine—between union and open-shop coal being small by the time delivery is made in the buyer's cellar. Coal yards that can take water delivery are distributing river coal chiefly, obtained from various points on the Monongahela, the saving in freight making up for the extra cost of production on account of the union scale.

Operators assume that coal buyers generally expect a mining suspension April 1 at the union mines and that the reason they are not stocking coal at present against this prospect is that they think there is still plenty of time left.

The market is quotable approximately as follows: Steam slack, \$1.30@1.50; gas slack, \$1.70@1.80; steam mine run and ordinary gas, \$2.10@2.20; 3-in., \$2.60@2.70; Panhandle 11-in. domestic, \$2.75@2.90 Pittsburgh district.

EASTERN OHIO

No Perceptible Change in Demand—Encouraging Signs of Industrial Activity—Production Trend Is Upward.

Production for the week ended Jan. 14 amounted to 329,000 tons or 52.6 per cent of potential capacity based on railroad ratings. As compared with output for the same week last year, when 346,000 tons were produced, the result is a decrease of 17,000 tons. Association mines worked about 44 per cent of full time, and are averaging around 50 per cent of capacity output.

There is no perceptible change in the sluggish demand except possibly that continued cold weather has brought a slight revival in inquiries from dealers. It was thought that some impetus might be given to Ohio production by the recent proclamation issued by Governor Davis urging that Ohioans buy Ohio coal.

While reports from industrial centers are somewhat encouraging some buyers unquestionably are hesitant to do any further stocking because of anticipated

reductions in freight rates and miners wages.

The volume of freight traffic on the railroads is showing no increase through the larger terminals and, consequently, the carriers likewise are consuming a minimum amount of fuel as compared with more normal times.

Steel makers in the Mahoning Valley and Youngstown District are more hopeful than ever of the prospects for the new year although not expecting capacity business during 1922. Wire mills are averaging around 50 per cent while sheet makers are running from 60 to 70 per cent. This, along with other favorable factors pointing to a further lifting of the depression, give reasonable grounds to believe that the volume of mining operations in eastern Ohio will be gradually upward as the year advances.

ANTHRACITE

Better Operating Conditions—Steam Market Stronger—Independent Domestic Prices Soften.

A greater resumption of work marked the week ended Jan. 14. The majority of the companies are working full-time. Independent coals are more readily taken, but prices on domestic sizes have slipped back a peg. Steam grades are in good demand.

The strike at the Barnum Colliery of the Pennsylvania Coal Co., near Pittston, has been settled. Although search is still being conducted, the bodies of the miners who lost their lives in the National Mine disaster have not yet been recovered.

FAIRMONT AND PANHANDLE

Railroad Fuel Business Is About All There Is to Be Had—General Conditions Worse Than When Year Opened.

FAIRMONT

Production is still greatly curtailed. Mines are almost solely dependent upon light railroad fuel business. Most mines in the northern part of the state are still out of commission.

NORTHERN PANHANDLE

Except where mines have railroad fuel contracts operations are either greatly limited or else mines are closed. The average weekly production of about 50,000 tons, is taken mainly by railroads. Railroad fuel mines are working half time. Other mines are running one or two days a week if at all.

UPPER POTOMAC

Whole Region Awaits Making of New Wage Scale—90 Per Cent of Mines Stand Idle.

No improvement in the situation in this and the Georges Creek territories is expected before a new wage agreement is made. Fully 90 per cent of the mines are still idle. About the only mines in operation are those at which there has been a lowering of the wage scale. There is a possibility that companies and miners may make their own agreements without regard to the union.

CENTRAL PENNSYLVANIA

Prospects Good for Pick-Up in Business—Rough Weather Interferes—Prices Firm.

With the end of the second week of January, coal operators experienced better business and the prospects look good for a continual pick-up for the remainder of the month.

The prediction that the removal of the transportation tax would increase business pretty generally came true and there was increased buying. Weather conditions have been bad in the field for some time and this had the effect of decreasing output. With stocks depleted and a strike in prospect, buying is heavier now than for many months.

Car placement was interfered with for several days on account of the heavy snowfall throughout the entire region but this was soon overcome and worked but little hardship. Prices have shown no tendency to drop.

UNIONTOWN

Market Shows a Little Life—Future Orders Appear—Coke Is Almost Inactive.

The coal market is commencing to show a little life in expectation of the contracting period of April 1. The activity is not pronounced but when compared with the listless market tone prevalent for several months it becomes a decided improvement. That situation is reflected in quotations of coal offerings for delivery up to April 1.

While the spot market on byproduct is quotable at \$1.50@1.60 the price goes up \$1.80@1.85 where the consumer wants delivery running over the three months period. While the aggregate of such business is not large it is held to be significant as showing which way the wind is blowing. The market for steam coal of various grades is quotable at \$1.35@1.50 with the analysis not cutting such a figure in price as would be expected.

Coke requirements at present seem to be fairly well covered and the market may be termed almost inactive. Quotations, however, have not been affected and \$2.75@3 is the range for standard quality furnace coke. A ratio of \$3.75@4 prevails for foundry coke with a 25 cent premium for box car loading.

CONNELLVILLE

Market for Coke Softens Noticeably—Nobody Is Buying Much—Production Increases.

The recent stiffening in spot prices for both furnace and foundry coke is over. No new contract business has appeared.

Heavier production by the merchant ovens some time ago has been absorbed and stock coke is light now. The blast furnaces have been buying practically no spot coke for weeks past and miscellaneous demand is lighter than usual.

Standard furnace coke can be had for \$2.75. Highest grade foundry coke remains quotable at \$3.75. The market prices are: Spot furnace, \$2.75@2.90; contract furnace, \$3.10@3.20; spot foundry, \$3.75@4.25.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Jan. 14 at 56,100 tons by the furnace ovens, an increase of 8,980 tons, and 32,810 tons by the merchant ovens, a decrease of 1,200 tons, making a total of 88,980 tons, an increase of 7,780 tons.

Middle Appalachian

HIGH-VOLATILE FIELDS

Kanawha Production Picks Up a Little—Prices Still Sag—No Demand Even Though Slack Is Running Short.

KANAWHA

Production is back on the December level. Market conditions remain much the same, with no spot demand except a little for slack. Lump was not over \$2.75 and little moved. Mine run was \$1.25@\$.1.75.

LOGAN AND THACKER

Logan mines with a lower wage scale regained during the first half of January some of the ground lost late in December and were producing at about 42,000 tons a day during the week ended Jan. 14. The bulk of this output, however, was divided between contract and commercial orders and railroads.

The output in the Thacker field is now about 30 per cent of capacity. It meets contracts and railroad fuel orders. The demand for domestic is light. Slack is getting scarce. Lump was not quoted at more than \$2.75.

VIRGINIA

Conditions are little changed. Mines are producing about 50 per cent of normal capacity. Most of this goes to regular customers. Many plants are still shut down. Prices are: Lump \$3@\$.3.25, egg, \$2@\$.2.25, slack \$1.25@\$.1.75.

NORTHEASTERN KENTUCKY

The early January slight spurt in production has subsided. A majority of mines in eastern Kentucky are closed. Demand for domestic coal is dead as ever. Prices are, slack, \$1.25@\$.1.50; mine run, \$1.50@\$.1.75; lump, \$2.75@\$.3.

LOW-VOLATILE FIELDS

Production Picks Up—Shipments to Tidewater Slightly Larger—Little Coal Goes Westward.

NEW RIVER AND THE GULF

New River production picked up a little with lower wages even though there was no general change in the smokeless market. This increase was limited, however, to the first day or so of the second week in January. There was a fairly large movement to Tidewater. Prices are: Prepared, \$3@\$.3.50; mine run, \$2; slack, \$1.25@\$.1.65.

Gulf production was approximately 35 per cent of potential capacity with many of the mines still down. There was a little better Tidewater movement than during December. Contract orders were about all that producers had and they only sufficed to keep mines going for one or two days. Prices on all grades continue low.

POCAHONTAS AND TUG RIVER

Pocahontas production has increased a little. For instance, on Jan. 9 over 2,000 cars of coal were loaded on the N. & W. Contract shipments were somewhat larger than usual and there was also a better movement to Tidewater. The market for prepared was dormant. Lump was \$3@\$.3.75 and slack \$1.25@\$.1.75.

Tug River production continues at the rate of about 65,000 tons a week be-

cause of the large tonnage sent to affiliated companies. There was little tonnage flowing eastward either to Tidewater or to inland markets. Prices were about the same as in the Pocahontas region.

Middle West

WESTERN KENTUCKY

Some Private Wage Reductions—Union Scale Forces Inactivity or an Operating Loss.

The general situation is unchanged. Coal is being produced at cost or at a loss in some instances, although some operators have private wage agreements and are not paying the union scale. It is understood that this has been the case in some instances, where miners rather than be idle have agreed to accept less than the union scale to enable the mine to compete with sections that are not paying union wages.

For instance, it is reported that one gas and electric company, which has its own mines, has found that it could buy coal on the open market for less than it could produce it.

Until something is done to relieve the wage scale situation, and industrial demand picks up, the western Kentucky field is merely endeavoring to hold its markets.

MIDWEST REVIEW

Strike Talk Does Not Urge Industries to Stock Up—Some Operators Drop Prices Without Stimulating the Movement.

The newspapers in the Middle West are giving a great deal of space to the prospect of a mine strike in the spring. The average purchasing agent looks upon the strike talk as very clumsy propaganda, gotten up solely to stimulate sales. This attitude is so general and so pronounced that the volume of sales is far below the amount predicted last fall. During the early winter months, those who were in the habit of prognosticating the future for the coal industry, made frequent prophecies in regard to the good business Illinois and Indiana operators were going to enjoy from Jan. 1 until April 1. Unfortunately, these predictions have not materialized, as business continues to lag in both the steam and domestic markets.

The week passed quietly, so far as the situation on domestic coals is concerned. Some of the Franklin County operators are reported to have cracked under the strain they have been subjected to for a long time, and made very substantial reductions on their prices, especially furnace and small egg. These reductions were not made to the retail trade by circular but were made rather to a few favored wholesalers from whom quick assistance could logically be expected. While these reductions stimulated sales a little, the results were not satisfactory and probably did more harm than good, so far as the general welfare of the trade is concerned.

Very little buying of steam coal took place last week. Practically no additional railroad coal has been sold outside of contract. Screenings are barely holding their own. Purchasing agents are not interested. Most of them do

not know how long their factories are going to continue in operation.

Those in charge of the credit department of the large coal companies are leading a harassed life because, in the first place, collections are unusually slow and in the second place, credit risks have very greatly increased. Accounts which were perfectly good a year ago and less than a year ago, are now uncertain. A large number of coal companies have taken out credit insurance. The general complaint against credit insurance, however, is that the insurance companies are so strict and their requirements so numerous that it is almost impossible to find customers who are strong enough financially to satisfy the insurance people. It is safe to say, however, that the percentage of those in the coal business taking out credit insurance has increased nearly 80 per cent.

SOUTHERN ILLINOIS

Weather Increases Movement of Domestic Tonnage—Steam Shows Improvement—General Condition Bad—Railroads Begin to Store Coal.

In the Carterville field the seasonable weather in the past week has helped to move domestic sizes. The steam situation looks somewhat better. Some mines have had to crush coal to keep up their contract requirements.

The general situation is unsatisfactory. Several mines are idle, though railroads, who generally buy coal from this section are beginning to increase their tonnages.

The Association operators are still asking \$4.05 for lump or egg, but the nut is going at about \$3.50@\$.3.75. Screenings range \$1.75@\$.2 or a trifle better. Independents are selling as low as \$3@\$.3.25 for lump and egg, and \$2.75 for nut. The mine run price generally is about \$2.60@\$.2.75.

The situation and prices in the Duquoin and Jackson County fields are somewhat similar to those in Carterville. The Mt. Olive situation shows a little improvement in the movement of domestic sizes. The mines work about two days a week on domestic and five days on railroad tonnages.

The country price on domestic sizes is \$3.75, St. Louis and Chicago \$3, and Kansas City and adjacent territory \$2.50 to meet competition from other fields.

The Standard situation continues much as it has been, with a surplus of everything.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Cold Moves Coal a Little, but Buyers Are Chary—South Uses More Wood.

Cold weather has helped to reduce retail stocks and domestic demand again shows some signs of life, but buying continues on a hand-to-mouth basis and has not helped production to any appreciable extent. Reports are coming in from the South indicating that wood is being substituted for coal.

As to the steam trade, wholesalers are pessimistic. In most cases they agree that bookings are better than for December, but prices continue to weaken.

Best Harlan block is quoted \$2.65@\$.2.75; mine run, \$1.50@\$.1.65; screenings, \$1.25.

News Items From Field and Trade

ALABAMA

An examination of applicants for certificates of competency to fill positions as first and second class mine foremen and fire bosses was held in the offices of Chief Mine Inspector C. H. Nesbitt, Birmingham, from Jan. 23 to 26. The state board, of which Mr. Nesbitt is chairman, holds these examinations each January and July.

Announcement is made of the appointment of **James L. Brierton** as vice-president and general manager of the Central Iron & Coal Co., in charge of Southern properties. **Robert E. Rust** has been made president of the corporation and **Robert A. Allison**, assistant general manager. Southern headquarters are at Halt, Tuscaloosa County, where furnaces and byproduct ovens are located, with coal mines at Kellerman and other points. Mr. Brierton has managed the Southern properties for a number of years.

The **Bracehead Coal Mining Co.** has been organized at Blocton, Bibb County, and has leased 640 acres containing the Woodstock seam of coal in the Cahaba coal basin six miles from Blocton on the Mobile & Ohio. The mine is being equipped to produce 300 tons of coal daily. **C. C. Huckabee**, of Birmingham, is president of the new company.

ARKANSAS

Receivers have been named for the **Southern Anthracite Coal Co.**, of Russellville, in the United States Court for the Eastern District of Arkansas, on petition of the **McAlester Fuel Co.**, McAlester, Okla. **E. W. Hogan**, superintendent of the company's Russellville mines, and **John W. White**, of Russellville, were named receivers. The company is unable to meet its obligations and judgments recently taken against it, according to the petition.

ILLINOIS

Howard W. Showalter, of the Diamond Coal Co., Fairmont, was a visitor in Illinois markets during the latter part of January.

The mine at Farmesville, near Hillsboro, which was closed before the United States entered the war, is soon to be opened again. The property is owned by German interests who closed the mine during the war. A tract of 30,000 acres of land is owned in connection with the mine.

C. B. Kunneman of Nameoki has been named by Governor Len Small on the state industrial commission to succeed **L. F. Lumaghi**, president of the Lumaghi Coal Co., of Collinsville, who resigned because of press of business.

The **North Breese Coal & Mining Co.**, has sold its mine at Breese to the **Breese-Trenn Mining Co.**, of St. Louis.

A judgment was given in the Federal Court, East St. Louis, against the **Illinois Fuel Co.**, of Sparta, of \$12,900 in favor of the **Space Fuel Co.**, of Minneapolis, for breach of contract. The evidence proved that when the market advanced the defendant failed to ship on the contract but sold the coal on the open market.

Thomas Henderson, well-known coal operator and mining man of southern Illinois, is spending the winter months at Vero, Fla.

INDIANA

As a result of the leasing of the **Chicago, Terre Haute & Southeastern Ry.** by the **Chicago, Milwaukee & St. Paul Ry.**, a market for an enormous tonnage annually is opened in Indiana coal fields. Credit is due the Division of Geology of the State Conservation Department, which published many articles concerning the quality, quantity, value and distribution of the coal of Indiana, and which undoubtedly supplied the information whereby the St. Paul system was able to determine the value of Indiana's coal resources. This railroad system will use about 3,000,000 tons of coal a year in addition to the coal being supplied from the mines in other states intersected by their system.

The tippie at the **Vandalia Coal Co.'s No. 23 Mine** which was destroyed by fire four months ago, has been replaced with a new structure and operations have been resumed.

KENTUCKY

The **North Jellico Coal Co.**, Wilton, has increased its capital from \$175,000 to \$525,000.

The **Cherokee Coal Co.**, Louisville, capital \$25,000, has been chartered by **T. V. Borntraeger**, **John F. Hershey**, and **Louis V. Glogower**.

The **Hayden Smith Coal Co.**, Mercer, has changed its name to the **Hayden Coal Co.**

The **Block Coal Co.**, and **Martha Washington Coal Co.**, Evarts, have merged as the **Block Coal Co.**, and increased aggregate capital from \$60,000 to \$75,000.

W. C. Hartley, of the **D. H. Brown Coal Co.**, of Knoxville, visited the mines in Harlan and Bell County recently.

Fred M. Sackett, of the Speed interests, operating the **Byrne & Speed Coal Co.**, and numerous mining operations in the state, has been elected president of the Louisville Board of Trade, a position which he resigned in 1917, to take up war work.

The **Parkland Ice & Coal Co.**, Louisville, has announced plans for erection of a plant to cost between \$50,000 and \$75,000, work to start at once.

The **Duvin Coal Co., Inc.**, is about ready for operation. Incorporators are **F. V. Ruckman** and **D. J. Ruckman**, Providence. This is one of the larger mines in western Kentucky.

The **Long Wall Mining Co.**, Pineville, has been chartered by **Estill Gooch**, **James Gabbard** and **N. R. Patterson**.

A coal mine over a coal mine, each operated by different companies, will be accomplished at Providence, a few miles south of Evansville. An Alabama company has leased 300 acres of land from the **Diamond Coal Co.** at that place and instead of sinking a shaft to reach the first vein of coal, will use gigantic steam shovels to strip off the surface. It is said that the stripping operation will not disturb that of the company, which owns the land and which is digging coal at a considerable depth under the surface.

MARYLAND

R. P. Maloney, one of the representative operators of the Upper Potomac field, in charge of the operations of the **Davis Coal & Coke Co.**, at Thomas, spent a few days in Baltimore during the second week of January.

William A. Morgart, of Cumberland, has been made president of a \$600,000 Maryland corporation, which he formed for the development of a new coal field in Garrett County. The tract consists of 35,000 acres upon which three mines of large capacity are being opened.

G. Marshall Gillette, of Frostburg, in charge of the Maryland division of the Consolidation Coal Co., was at Baltimore during the second week of January.

MISSOURI

The **Bates Coal Mining & Mercantile Co.** has opened a new coal mine on the Bellier place, north of Rich Hill and is now loading coal.

The **Central Missouri Coal & Mining Co.**, recently organized at Jefferson City, is planning extensive improvements on the coal properties at Hibernia. New equipment will be purchased, including boilers, engines, conveyors, pumps and general mining machinery. A railroad line will also be installed at the mine. **John McManus**, secretary-treasurer, is in charge of the work.

Mine No. 1 of the **Home Coal Co.** has shut down on account of the condition of the coal market. One hundred and ten men were employed at the mine.

John C. Poepperling has severed his connection with the **Sterling-Midland Coal Co.**, St. Louis, to engage in business for himself.

NEW YORK

Fred D. Gearhart, formerly with **Cosgrove & Wynkoop Coal Co.**, of New York, and well known to the coal trade, has gone into business for himself with offices at No. 1 Broadway.

The **Chelsea Coal Corporation** has been formed to transact business in New York City. It has a capital of \$10,000 and the incorporators are given as **S. Naylor**, **G. B. Van Zee**, and **D. F. Gilchrist**.

The **Valley Camp Coal Co.**, of Cleveland, has opened a branch office in the Marine Trust Bldg., Buffalo, with **Martin F. Murphy** in charge. This is another move in the effort to place No. 8 coal in the Eastern market.

C. W. Watson, president of the Consolidation Coal Co., spent the Christmas holidays in New York.

The firm of **W. W. Battie & Co.** is now known as **W. W. Battie & Co., Inc.**, a New York corporation, in which **William Whittingham Battie**, **Carlos C. Rodriguez** and **Joaquin P. Rodriguez** are directors. The corporation will continue to carry on the business heretofore carried on by **W. W. Battie & Co.**

Effective Jan. 1, **J. Noble Snider** is appointed Coal Traffic Manager of the New York Central Railroad Co. (Line Buffalo, N. Y., Clearfield, Pa., and East) with office at Grand Central Terminal, New York, vice **G. N. Snider**, resigned.

Effective Jan. 1, **Alan McMichael** is appointed Coal Freight Agent of the New York Central Railroad Co. (Line Buffalo, N. Y., Clearfield, Pa., and East) with office at Grand Central Terminal, New York.

Brooks Fleming, Jr., of Fairmont, assistant to the president of the Consolidation Coal Co., was in New York on business connected with his company on Jan. 9 and 10.

Frank R. Lyon, vice-president of the Consolidation Coal Co., with headquarters at Fairmont, was in consultation with officials of his company at New York on Jan. 10.

John Markle, one of the Pennsylvania coal operators, who lives at the Hotel Plaza, New York, underwent an operation recently, that, it was believed, would restore the vision of his left eye. He has been blind in the right eye since 1907, while the sight in his left eye had been rapidly failing. Mr. Markle is recognized as one of the largest independent anthracite operators in Pennsylvania.

OHIO

Papers have been filed with the secretary of state increasing the authorized capital of the **Mt. Cherry Coal Co.**, from \$600,000 to \$900,000. The concern has large coal properties in the Hocking Valley.

George F. Carpenter, who was the president of the New York Export Coal Co. and formerly with the **Matthew Addy Steamship Co.**, has opened an office in the Dixie Terminal Bldg., Cincinnati, where he will represent **Dexter & Carpenter**, of New York, as that company's Western sales manager.

The state will have in operation soon a new system of mine rescue work, which is expected to be more efficient than the old system. Trucks containing mine rescue equipment of all kinds, stationed at five central points in the mining regions have been purchased. Each of the trucks will have the same equipment as the mine rescue cars used on the railroads. On each truck will be six breathing machines and also six resuscitating machines. The truck stations will be at Pomeroy, Nelsonville, Cambridge, Bellaire and Amsterdam.

J. S. Jones, chairman of the board of trustees of the **Sunday Creek Coal Co.**, left recently for a three weeks sojourn in Florida with his family.

The offices of the **Lakin-McDonald Coal Co.**, a Columbus jobbing concern has been moved from 16 East Broad St. to the Interurban Terminal Bldg.

Changes made in the Cincinnati coal trade with the first of the year were: **Walter L. Tetman** becomes field agent for the **Chesapeake & Virginian Coal Co.**, with headquarters at Huntington; **Fred A. Walker**, a former retailer at Mt. Healthy, becomes office man for the **Amherst Coal Co.**; **J. W. Astbury**, former manager of the **Raleigh Smokeless Coal Co.**, Michigan representative for the **Amherst Coal Co.**; **Sam McLaughlin** severs his connection with the **Central Fuel Co.**, and **F. U. Fischer** goes with the **Hager Coal Co.**

E. J. Frechtling, Cincinnati sales agent for the Main Island Creek Coal Co., has announced the following incorporations: **E. J. Frechtling Coal Co.**, of Hamilton, capital \$50,000, Guy Mitchell, Elmore J. Frechtling, Robert N. Shotts, Brandon R. Millikin and Millikin Shotts incorporators; **Frechtling-Mitchell Coal Co.**, capital \$100,000, same incorporators, also of Hamilton.

A. L. Moses, who has been secretary of the Southeastern Coal Co. since it was formed, has resigned to become the manager of the retail department of the E. J. Frechtling Coal Co. in Cincinnati. This will be run as a branch of the Hamilton company that was recently formed.

Seeking dissolution of the **J. B. Hickory Cannel Coal Co.**, Jewett, Bigelow and Brooks, Detroit, has filed suit in the Hamilton County Common Pleas Court at Cincinnati, in which it alleges that the stock, property and effects of the Hickory company have been reduced so far that it will not be able to pay all just demands for which it is liable. The Detroit company and its individual members own 148 shares of the 300 shares of stock issued while Okey Meadows and his wife of Cincinnati own 150 shares. Louis H. Stone and H. E. Chrisman, Cincinnati own the remaining 20 shares.

Homer L. North is now the Akron representative of the Wholesale Coal Co., Pittsburgh, succeeding **T. J. McNamara**.

E. H. Doyle, general manager of the Middle West Coal Co., with sales offices in Cincinnati, is spending a well-earned vacation in Arizona. Mrs. Doyle accompanied him on his trip.

William J. O'Toole, vice-president of the Central Pocahontas Coal Co., who was recently appointed Minister to Paraguay, expects to sail for South America about March 1. He recently paid a visit to the sales office in Cincinnati.

PENNSYLVANIA

The **Thomas Colliery Co.**, of Shenandoah, has decided upon an immediate appeal to the Supreme Court against the decision of Judge Henry, of Lebanon County, who greatly limited its mining operations to save the surface and prevent the destruction of valuable property. The case is said to prove that there is possibility of suits in equity restraining mining operations which cause cave-ins, without recent legislation on the subject, as this case is brought under the general law and not under recent acts.

Plans are nearly completed for six additional batteries of byproduct coke ovens to be erected at the Clairton works of the **Carnegie Steel Co.** It is expected work will be commenced early this month. The new ovens will be built on the 1,800 x 5,200 ft. site on which the twelve batteries now in operation were erected in 1918 and 1919.

Two employees of a coal company recently disputed as to the manner in which certain work should be done. One of the men, trying to get away from the other, tripped in a doorway, fell, fractured his skull and died. The compensation board on the appeal of the **Huskin Coal Mining Co.**, of Windber, decides that the company must pay compensation as Oravec was in the course of his employment.

It has been announced this week that **Maurice A. Conrad** has been appointed manager of the Pittsburgh office of the **F. A. Fish Coal Co.**, Toronto. He succeeds the late E. F. Hartland.

Thurston Wright is president, and **John Gibson**, vice-president and general manager of the **Penn Smokeless Coal Co.**, operating in Somerset County. They also comprise the **Wright-Gibson Co.**, a coal sales agency. Their office is in the Union Bank Bldg., Pittsburgh.

F. A. Wyant, who recently resigned as resident engineer in charge of the construction of the new Warwick Mine of the **Diamond Coal & Coke Co.**, has accepted the position of engineer for the **Arrow Coal Mining Co.**, Pittsburgh.

High water on the Monongahela River recently floated away and destroyed the tipples of the **Albany Coal Co.**, below Brownsville. The tipples are being rebuilt.

The **Warwick Coal Co.**, of Pittsburgh, has contracted with the **Roberts & Schaefer Co.** for the installation of a new steel river loading tippie near Martin.

The **Keystone Coal & Coke Co.** on Feb. 1 will take over the properties of the **Jamison Coal & Coke Co.**, in the Greensburg district. The purchase, involving about \$8,000,000, was consummated recently.

VIRGINIA

John M. Franklin has been appointed manager of the **Hampton Roads** offices of the **Cory Mann George Corporation**, succeeding **A. C. Odenhal**.

The **Smokeless Coal Corporation**, Pulaski, recently organized with a capital of \$150,000, is planning for the installation of electrical and other operating equipment at its properties. The company has a tract of over 1,400 acres of land and will proceed with extensive development work at an early date.

WASHINGTON, D. C.

Argument is being heard by the Supreme Court in the case involving appeals of minority stockholders from the decree in the Reading coal dissolution case as entered by the U. S. District Court at Philadelphia. Among the last briefs to be received by the court in the case was one opposing the District Court's decree by **Seward Prosser**, **Mortimer N. Buckner** and **John H. Mason**, representing a committee of common stockholders. They noted seventeen exceptions to the decree of the lower court.

R. C. Moore, state geologist of Kansas, has been in Washington conferring with officials of the United States Geological Survey.

The Supreme Court has postponed argument of the **Coronado Coal Co.** case, in which the United Mine Workers seek to set aside a judgment in favor of the coal company for destruction of its property during a strike, from Feb. 27 to March 20, on motion of **William A. Glasgow, Jr.**, one of the attorneys in the case.

E. F. Burchard has been granted a year's leave of absence by the Geological Survey, to undertake private work in oil geology in South America.

That a revived interest is being taken by the American Institute of Mining and Metallurgical Engineers in the Federated American Engineering Societies was indicated at the recent meeting in Washington of the executive board of Engineering Council. The matter of licensing of engineers was brought up at the request of the institute. A very spirited debate was occasioned. The proposal was laid on the table and the president was instructed to submit the matter to a special committee for consideration and report.

J. M. Hill, **V. C. Helkes**, **C. W. Henderson** and **C. N. Gerry**, of the Western offices of the United States Geological Survey, spent the week of Jan. 9 in the Washington office.

The Bureau of Mines has issued a report reviewing investigations in North Dakota as to the development of lignite as a high grade fuel, the report covering lignite carbonization and carbonized residue briquets.

O. E. Meinzer, of the staff of the Geological Survey, is making an extended Western trip.

WEST VIRGINIA

The **Wilhelmina Collieries Co.**, at Williamson, has contracted for a Marcus screen and loading equipment to be installed in their tippie near Williamson.

A company recently organized to develop a tract of coal land in Clay County and whose plans for such development are progressing is the **Elksplint Coal Co.**, with headquarters at Elkhurst. This company has a capital stock of \$75,000.

The **West Virginia Coal & Coke Co.**, the general offices of which are at Elkins, has completed the installation of a large conveyor at one of the important mines in Randolph County.

W. H. Cunningham, of Huntington, spent a part of the second week of January at Washington where he attended a meeting of the West Virginia Association, of which he is secretary.

The Atwater interest in the **Fire Creek Smokeless Coal Co.** and the **Laurel Smokeless Coal Co.** operating on the Stone Coal Branch of the Virginian, has been acquired by the **Kinsley Steamship Co.** The secretary of the two companies, following the change in ownership is **C. J. Spath**, of New York. Mr. Kinsley, controlling the **Pawama** and **Algonquin** coal companies on the Norfolk and Western, will consolidate the operations of all four companies under one management.

George Wolfe, secretary of the **Winding Gulf Operators' Association** with headquarters at Beckley, who recently returned from a trip to Jacksonville, was at White Sulphur Springs, on Jan. 10, when the annual meeting of the association was held.

Frank B. Stewart is in Winifrede to direct the work that is being provided for the miners of the **Winifrede Coal Co.**, of which he is the president. Mr. Stewart learned that units of the Red Cross were preparing to enter the Kanawha coal fields to do welfare work among the destitute miners there. He was struck with a plan to forestall such a move on his property and has offered all of the men who were willing to work at \$2 a day employment in cleaning up the property and otherwise improving things on top.

Friends of **S. A. Scott**, vice-president and general manager of the **New River Co.**, the largest operating concern in the New River field, are glad to learn that he is recovering from a successful operation and is convalescing rapidly at Atlantic City.

Edward Cooper, former member of Congress and head of the **Mill Creek** and other companies in the Pocahontas field, although offered the post of minister to Peru has declined the honor, feeling that he could not relinquish at present the management of the numerous properties in which he is interested in southern West Virginia.

The **Norfolk & Western Ry.** will build a new coaling plant at Williamson to cost about \$75,000. Plans have been completed and the work will be commenced at an early date.

The **Pemberton Coal & Coke Co.**, is planning for extensive operations at its properties at Affinity. The company has increased its capital from \$300,000 to \$700,000 for expansion. **William A. Phillips** is president.

Lee J. Sandridge of Philippi, in association with Pittsburgh people has organized the **Meriden Collieries Co.**, which will operate at Meriden in the Barbour County field on the line of the B. & O. Associated with Mr. Sandridge in this venture are: **Clyde B. Johnson** of Charleston; **A. S. Davis**, **H. M. Feely** and **F. C. Masten** of Pittsburgh.

ALBERTA

Alberta coal is coming into competition with the product of Vancouver Island and the Nicola-Princeton Fields. Evidence of this has been marked in recent weeks, in fact ever since a reduction in freight rates was announced. Operators believe that, if it can be shown that their fuel is as good for steaming purposes as that of the Island, it will be possible, by underselling, to obtain a grip upon the market now controlled by the collieries of the coast.

NOVA SCOTIA

Only actual miners will be included in the new schedule of wages and working conditions made by the **Dominion Coal Co.**, in Nova Scotia, with the United Mine Workers. It is stated that the company wishes to eliminate from the contract shopmen, railway sectionmen and others not concerned with actual mining operations, but who have been covered by previous United Mine Workers' schedules.

ONTARIO

Lyman Bovee, president of the **Arcadia Coal Co.**, Pittsburgh, was a recent caller on the Toronto coal trade.

According to a statement just issued by the assignee, assets of the **Nukol Co., Ltd.**, are \$144,212, and liabilities \$72,309. Preferred creditors and outstanding bondholders have claims amounting to \$62,874. Claims of other creditors are \$9,635.

A visitor to Toronto recently was **W. J. Bursiek**, Ontario representative of **Jewett, Bigelow & Brooks**, of Detroit.

G. B. Bauder, of the **Berwind Fuel Co.**, Cleveland, O. was a recent business visitor in Toronto.

The **Trust & Guarantee Co.** has issued a writ at Osgoode Hall, Toronto, against the **Port Stanley Nukol Co., Ltd.**, to enforce a mortgage of March 15, 1921, securing bonds or debentures to the amount of \$200,000. The company also asks that they be appointed receivers.

R. M. Hamilton, of the **Jefferson Coal Co.**, Pittsburgh, was a business visitor in Toronto recently.

Traffic News

The commission has opened for further oral argument the case of the **American Smelting and Refining Co.**, in which the commission recently decided that demurrage charges and average free time at Baltimore on shipments of coke for export in 1918 were not unreasonable.

The **Northwestern Pennsylvania Coal Operators' Assn.** in a complaint alleges unreasonable rates on coal from mines on the Bessemer & Lake Erie and Western Allegheny roads to markets in New England on the Boston & Maine and New Haven roads because they exceeded rates from mines in the same district on the B. & O. and Pennsylvania roads to New England.

In the complaint of **Bell & Zoller Coal Co.** and others an examiner recommends that the rule of the B. & O. Southwestern and other roads governing the distribution of cars to mines for coal loading are unreasonable, and prescribes reasonable rules for the future.

In the **Refinite Company** complaint the railroads have filed exceptions of the examiners' recommendation that the commission eliminate the 1920 advance in rates on coal, pea, slack and screenings from Wyoming producing points to Ardmore, S. D. The railroads contend that the finding by the examiner for lower rates on smaller sizes of coal than on larger sizes is contrary to previous rulings.

In the complaint of the **Kellogg Toasted Corn Flake Co.**, involving rates on soft coal from Ohio fields and from the inner and outer crescent fields to Battle Creek, Mich., the Lansing Chamber of Commerce has been allowed to intervene.

The **Barnett-Fischer Coal & Mining Co.** has withdrawn its complaint involving rates on coal from Marion and Pittsburgh, Ill., and points in that vicinity, by reason of changes in reconignment rules.

The **Indiana Coal Trade Bureau** and the **Knox County Coal Operators' Association** have been authorized to intervene in the complaint of the **Milwaukee Association of Commerce** involving rates on hard and soft coal from Duluth and Superior.

The **I. C. C.** has awarded reparation to the **Cotton Manufacturers Association**, of South Carolina on shipments of bituminous coal from Appalachia and Dante districts in Virginia to Union, S. C., on which the charges were paid prior to Dec. 31, 1915, at rates found unreasonable in investigation of this case.

The commission will hear at Salt Lake on Feb. 6 testimony as to the rates on coal from Wyoming mines to points in Utah. On Feb. 4 at Salt Lake the commission will hear the complaint of the **Premier Coal Co.**

The **Independent Elevator Co.**, of Galloway, Minn., has complained against unreasonable rates on soft coal from Duluth to Detroit, Minn., diverted to Galloway.

The **Monongahela Power & Ry. Co.** has withdrawn its complaint relating to rates on soft coal from Baxter to Jayenne, W. Va., from June 25, 1918, to Feb. 4, 1919.

The **Republic Coal Co.**, of Minneapolis, has complained against unreasonable rates on soft coal from West Frankfort, Ill., to La Crosse, Wis.

The **Central Wisconsin Supply Co.** has withdrawn its complaint regarding rates on bituminous coal from Hymersa, Ind., to Milwaukee, reconsigned to La Crosse.

Examiner M. Witters of the **I. C. C.** heard the complainants in the person of the **Cincinnati Purchasing Agents' Association**, the **Cincinnati Waterworks**, and other utilities and their protest against the placing in effect of the L. & N. coal rate from the southeastern Kentucky fields to Cincinnati, Newport and Covington, (Ky.) at the Hotel Gibson in Cincinnati. When the increased freight rates were allowed there was a differential of 20c. a ton created in the favor of the Kentucky shippers as against those from West Virginia. A hearing was held and the rates of the L. & N. were allowed to be advanced. Later Cincinnati receivers awoke to the fact that they had allowed an opportunity to slip by and the hearing was allowed.

The **I. C. C.** has decided that the rates on coal from points in Idaho, Utah and Wyoming to Cottonwood and Nezperce, Idaho, are not unreasonable, but that one shipment of coal by the **Madison Lumber & Mill Co.**, from Storrs, Utah, to Nezperce was overcharged, for which reparation is awarded.

The **Meleroft Coal Co.**, of Pittsburgh, in a complaint to the **I. C. C.** alleges discriminatory rates on coal from Meleroft to

Eastern destinations as compared with rates from the Meyersdale and Clearfield regions by the absence of joint through rates.

In the complaint of the **Indiana Board & Filler Co.**, an **I. C. C.** examiner recommends that the rates on coal during Federal control from Indiana mines to points in that state involving a line haul of five miles or less which exceeded 50c. a ton were unreasonable.

The commission has denied the application of the **Omaha Chamber of Commerce** for reargument of the case in which the commission found that the reconsignment rules and charges on coal and coke in all cars effective Aug. 20, 1920, in territory west of the Mississippi River were not unreasonable.

In the complaint of **W. H. Warner & Co.** an **I. C. C.** examiner recommends that the rate on slack coal from Landon, Pa., to Rostraver and Monessen, Pa., is not unreasonable.

The Utah Supreme Court has denied the motion of the **Jeremy Fuel & Grain Co.** against the D. & R. G. Ry. to strike out a bill of exceptions in the action of the former to recover excess charges. The district court's decision was overruled.

The commission recently cancelled the hearing scheduled at New Orleans regarding rates and terminal charges on coal to Gulf Ports.

Obituary

The death took place in Toronto on New Year's day of **Ross Cotterill**, who for the past eight years has been the city salesman for the **Elias Rogers Coal Co., Ltd.** Deceased was widely known in the coal trade of Ontario and his death is generally regretted. He was thirty-eight years of age and leaves a wife and family.

James Y. Lockwood, secretary and treasurer of the **Southern Coal, Coke & Mining Co.** of St. Louis died at St. Luke's Hospital in that city on Feb. 9, after a few days' illness. He was 65 years old, was single and was a son of the founder of Webster Groves, Mo., a suburb of St. Louis, where he lived. The deceased was one of the pioneers in the coal business in St. Louis.

Association Activities

Cincinnati Coal Exchange

Hugh McVeagh was the speaker of the evening at the annual meeting and installation of officers of the exchange. Mr. McVeagh is the assistant general manager of the **Big Four** and told the hundred or more coal men who were present of the trials and tribulations of putting the railway's policy of fuel conservation into effect. He brought along samples of honeycomb, a new flue nuisance with which his road and others have to contend. James Reilly, president of the Chamber of Commerce and a former president of the coal exchange, Colonel Charles R. Moriarity and others spoke. Flowers were ordered sent to the hospital for Joseph Tuohy, a veteran office manager who is ill. The annual fees were voted to be maintained at \$10 a year.

Winding Gulf Operators' Association

At the annual meeting of the association held at White Sulphur Springs, W. Va., Jan. 10, all the members of the old board of directors and all the old officers were re-elected. E. E. White of Glen White, being chosen as president for the twelfth consecutive time. Other officers elected were: W. Gaston Caperton of Slab Fork, vice-president; C. H. Mead of Beckley, treasurer, and George Wolfe of Beckley, secretary.

The business session was followed by a luncheon, at which President White acted as toastmaster. Among the guests were J. G. Bradley, president of the National Coal Association; Judge Charles E. Dice and the Hon. Frank H. Anschutz, of Lewisburg; Robert Livermore, identified with the metal industry of Colorado and the Rev. Arthur B. Livermore.

In the course of his remarks, President Bradley of the National Coal Association said that the day of special isolation in any business was a thing of the past in the United States and through the closest co-operation only could the coal industry

hope to survive. Addressing himself to the question of ever-increasing taxes, he said that it behooved operators to interest themselves in seeing that men were sent to the legislature who would consistently and intelligently attempt to solve the problems of taxation. High freight rates to Tidewater and the demoralization of American shipping through unfavorable laws were cited as causes for the loss of foreign business.

West Virginia Coal Association

At a specially called meeting of the executive committee of the association held in Washington on Jan. 9, it was decided to make further urgent representations for a reduction of \$1 a ton in the freight rate on coal for export, this question pending before the Department of Commerce and the Interstate Commerce Commission. The text of the resolution adopted at the Washington meeting was as follows:

"The loss of the export trade on West Virginia coal is in a large measure due to the present high freight rate, though a reduction of \$1 a ton in the export rate to Tidewater will enable West Virginia operators successfully to compete with foreign coals in foreign markets to the extent of a very large additional tonnage over what is now being hauled to Tidewater over the various West Virginia railroads."

The executive committee authorized and directed the officers of the Association to present the views of West Virginia operators to the presidents of the Tidewater railroads.

Tug River Coal Operators' Association

The annual meeting of the association was held in Welch, W. Va., Jan. 18, with a large attendance of members.

The following executive committee was selected: A. B. Rawn, Huntington, A. F. Leckie, Welch, J. T. Wilson, Bluefield, H. H. Harman, Tazewell, Va., H. A. McCoy, Twin Branch, George Wolfe, Beckley, H. F. Warden, Bluefield, L. Epperly, Bluefield, C. H. Harman, Tazewell, Va.

The executive committee elected A. B. Rawn, president, A. F. Leckie, vice-president, C. C. Morfit, secretary, and John T. Wilson, treasurer.

A. B. Rawn was elected the association member of the executive committee of the West Virginia Coal Association and C. C. Morfit was named as alternate.

Consideration was given to House Bill 3721, recently introduced, which provides the establishment of a Government Fuel Yard at Washington. This bill is opposed on the ground that it is not proper for the Government to engage in general business and is simply a move on the part of some politicians that may result in the establishment of bureaus for coal, merchandise and what not all over the country.

Another matter was that of the Ohio rate case now pending before the **I. C. C.** This is an attempt on the part of southern Ohio operators to widen the differential on railroad rates on all coal going west. This is a vital question to the State as a whole, as it would mean an increase of approximately 35c. a ton on all coal going through and to Ohio and a loss of many millions of dollars annually to the business of West Virginia.

Coming Meetings

American Wood Preservers' Association is holding its annual meeting on Jan. 24, 25, and 26 at the Hotel Sherman, Chicago, Ill. Secretary, G. M. Hunt, Madison, Wis.

American Institute of Electrical Engineers will hold its midwinter convention in New York City, Feb. 15, 16 and 17. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

American Institute of Mining and Metallurgical Engineers will meet on Feb. 20 to 23 in New York City. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

Canadian Institute of Mining and Metallurgy will hold its annual meeting March 1, 2 and 3 at Ottawa, Canada. Secretary, G. C. Mackenzie, Drummond Building, Montreal, Quebec, Canada.

Southern Appalachian Coal Operators' Association will hold its next meeting Feb. 10, 1922, at Knoxville, Tenn. Secretary, J. E. McCoy, Knoxville, Tenn.

Pittsburgh Vein Operators' Association of Ohio will hold its annual meeting on Feb. 13, 1922, at Cleveland, Ohio; D. F. Hurd, secretary.